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Vol. II. PUBLISHED QUARTERLY. No. 1.

The Architectural Record.

To build up "a pile of better thoughts."—WORDSWORTH.
"And the worst is that all the thinking in the world doesn't bring us to Thought; we must be right by nature, so that good thoughts may come before us like free children of God, and cry "Here we are."—GOETHE.

JULY-SEPTEMBER, 1892.

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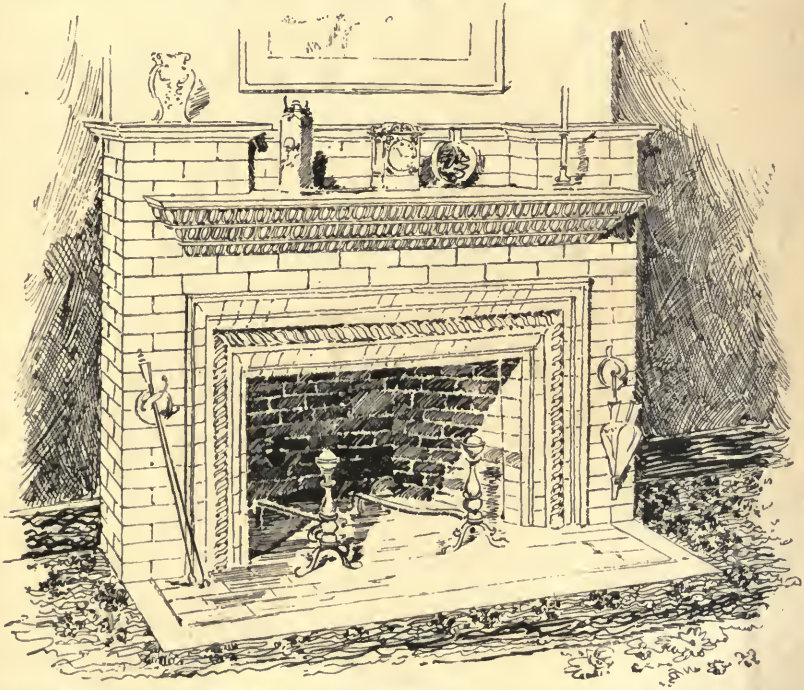
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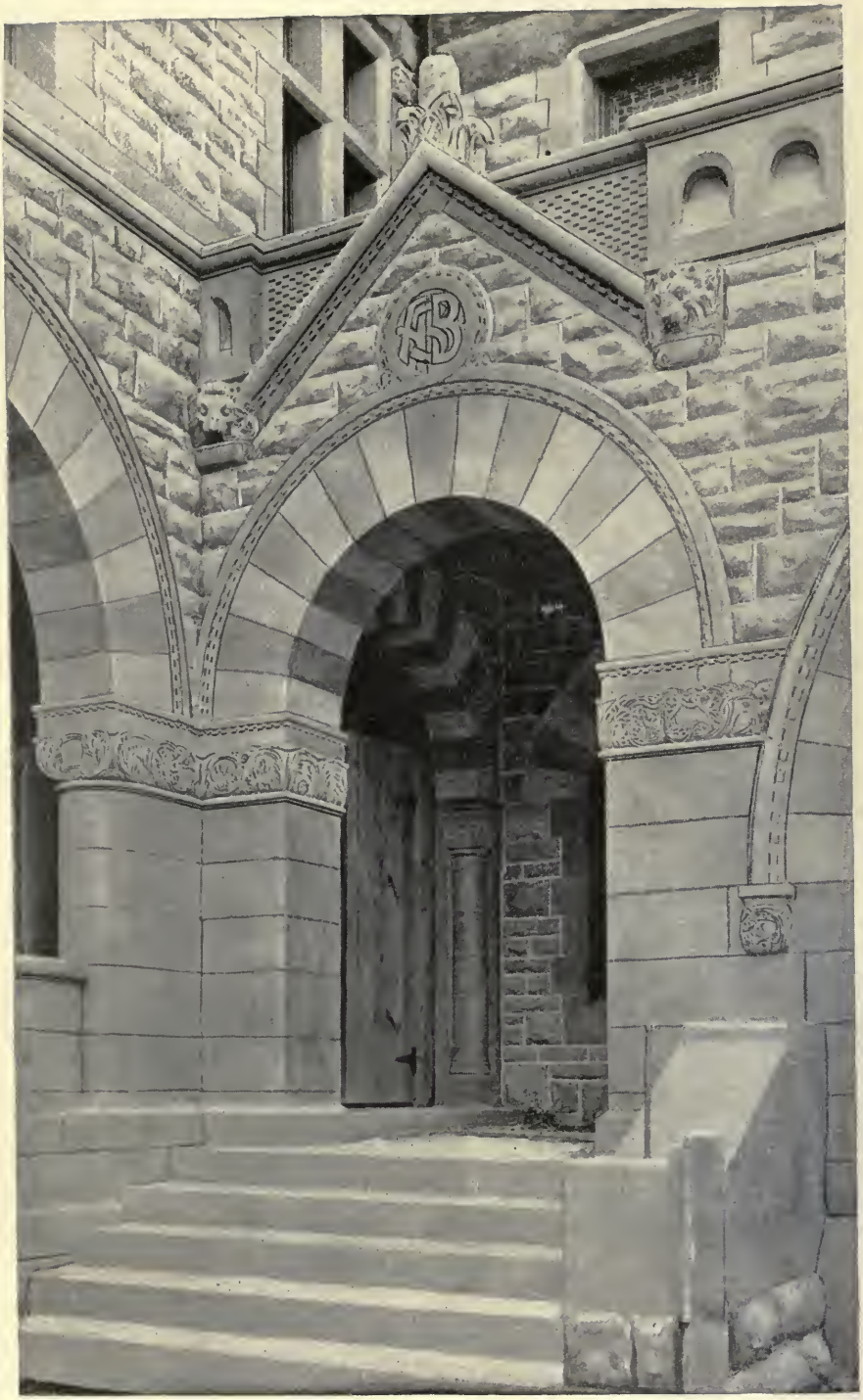


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THE CATHEDRAL, HILDESHEIM.

The
Architectural Record.

VOL. II. JULY-SEPTEMBER, 1892. NO. 1.

HILDESHEIM AND ITS CHURCHES.

AS long ago as the year 822, Hildesheim is mentioned in history. In that year, we are told, Lewis the Pious, Charlemagne's son and successor, made it the seat of the bishopric intended by his father to be established at the neighboring town of Elze. Less than a century before, Charlemagne had brought the heathen Saxons into subjection, and Christianity was yet new in the land. Gunther, the first bishop, had been Canon of the Cathedral at Rheims. Three years after his elevation to the new Episcopal See he consecrated the first chapel, naming it in honor of the Virgin Mary. This chapel is supposed to have occupied the site under the present cathedral, where the crypt of the new church is built. A pretty rose-bush that now clings to the outer wall of the cathedral choir is said by tradition to have grown there since the days of Lewis the Pious himself. In the twelfth century, when the choir and crypt were being enlarged, a protecting, hollow wall was built around the rose-bush, in order that the vine might continue to grow about the building when the new wall had been completed. A bit of the old arching may be seen behind the altar in the crypt. This is the present voucher for the great age of the rose-bush, and it must be admitted that many traditions repose upon a less solid foundation.

The succeeding century brought prosperity to Hildesheim in common with the other towns in the old Saxon land. The discovery of silver in the Harz Mountains was the first great cause of the new well-being that made itself felt. The growing power of the Saxon kings was another. There was a general quickening of the pulses of society that showed itself in the great building activity of the age. New towns, which afterwards became famous, then declined, and now live only in the historical interest that their names excite, were founded at this time, and built about with strong walls as a protection against the ormans and the rude warriors of the North. Convents and monasteries, owing their existence, for the most part, to the piety of kings' daughters, sprang up in every direction. The bishops began to give their palaces and churches a richer decoration, and the more important towns became in consequence the seats of a thriving art-industry in a style to which the art-historians long ago decided, with what justice we need not inquire, to give the name of Romanesque. By the name they intended to designate the single predominant feature common to the widely-varying forms of the art in the different countries in which it took root—namely, its dependence in its main principles upon Roman architecture. But it is easier for the lay-

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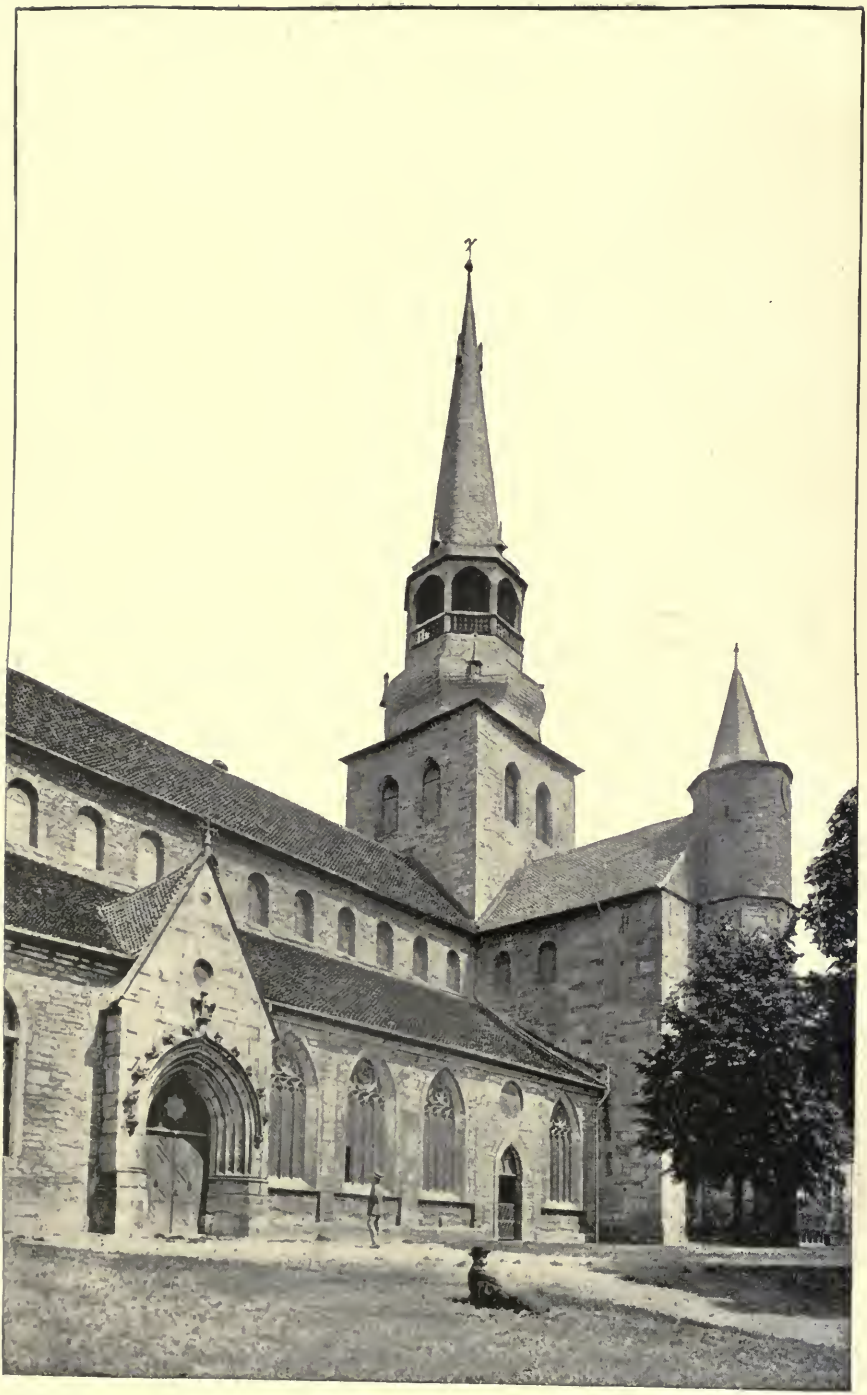
CATHEDRAL CLOISTER, HILDESHEIM, WITH 1,000-YEAR ROSE-BUSH.

man to think of it as the art that dominated Europe from the tenth to the thirteenth centuries, as the earliest style in which churches were built after Byzantine influences had been withdrawn.

Hildesheim was one of the cradles of the German Romanesque art, and as, fortunately for us, a period of ebbing fortune followed her first prosperity, her monuments were not carted away to make room for newer structures, but have come down to the inspection of the present day. It is the good Bishop Bernward whom Hildesheim has to thank for all the beginnings of her pre-eminence in mediæval art. Bernward, before he became bishop, was an ardent student of the arts and sciences at the Cathedral School, and then tutor of the Emperor Otto III. He was made bishop in 993, and in the following year went out in person to fight the Normans. Besides managing the affairs of his bishopric and acting as commander-in-chief of the Hildesheimers in time of war, he found leisure to undertake long journeys to Rome and Paris and a pilgrimage to the grave of St. Martin at Tours, from which he brought home many sacred relics. And yet this active public life, which might be considered sufficient for the energies of one man, did not prevent him from devoting his leisure to the art-handiwork that was probably the enthusiasm of his youth as well as the delight of his later years. Several curious articles of beautiful bronze workmanship in the Hildesheim churches have long by tradition been ascribed to him; whether justly or not, after the long lapse of years, it is difficult to determine. That in several branches of art-work he was personally engaged need not, however, be doubted; and the interest he took in all, expressed in his patronage of workers in every field of art, is quite certainly the cause of Hildesheim's early importance in the story of modern civilization.

But the work of Bernward and his contemporaries is not Hildesheim's only title to the attention of modern travelers. Centuries after the death of her great bishop a new day of prosperity dawned for the ancient city. The power of the bishops once broken, Hildesheim joined the Hanseatic League, and the blessing of a free commerce poured wealth into the pockets of her citizens. At this time the town received the characteristic appearance that it has preserved to the present day. Tall gabled houses plastered over with cross-beams were common enough throughout the whole Gothic period, but it required the spirit of the Renaissance, as well as the wealth of the new time, to give people the idea of covering their cross-timbers with carving, of inscribing their doorways with German and Latin mottoes, and of picking out in bright colors the wood-work on the façades of their houses. Again Hildesheim became the seat of a lively art-industry, as she had been in the old Romanesque days. The Gothic forms did not yield easily to the new art; on many an old house-front one can read a story of obstinate resistance on their part to the lighter and more graceful fancies of the budding Renaissance. But they yielded at last, leaving the new style in full sway until its own time came to degenerate and fade out of sight. And when this happened war and disturbance had come again to take the place of sleek prosperity, and little opportunity was left for Rococo and modern Nondescript to creep in and leave their impress on the productions of former generations. In the present century prosperity has come once more to Hildesheim and brought some evils in its train; but the glories of her two great periods—the early Romanesque churches and the quaint, picturesque timber-architecture of the German Renaissance—remain to the old town, and are better to be enjoyed here than anywhere else (so far as I know) in Northern Germany.

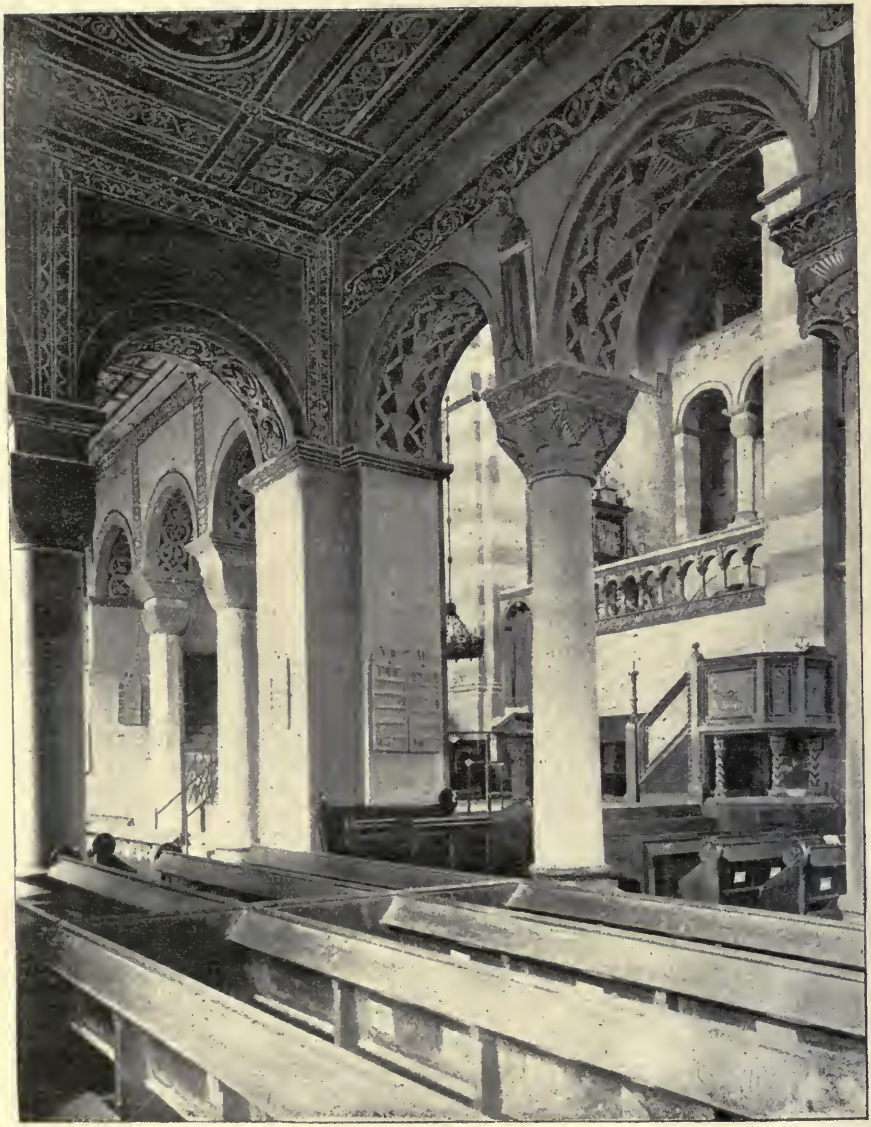
In a tour of the Hildesheim churches, it is perhaps best to begin with St. Michael's. Although the Cathedral occupies the oldest consecrated site in the town, the changes it has undergone have been so great, and the interior has been so recently "restored," that it is not so easy there to catch the spirit of the time in which it was built; St. Godehard's, on the other hand is, externally, older than St. Michael's



ST. MICHAEL'S CHURCH, HILDESHEIM.

Church, as one sees it to-day, but its interior has been scraped and cleaned and then painted all over in bright colors until it fairly flashes with newness and fresh paint. St. Michael's was originally a basilica with six towers, three aisles, two transepts, a double choir, and underneath the west one, a crypt. The site was used first for a monastery, dedicated by Bishop Bernward in 995, the year of the plague, to St. Michael. In the year 1001, on his return from Rome, the good bishop laid the foundations of the church, and the work was carried forward with such rapidity that on Michaelmas day, 1022, he was able to dedicate the whole edifice. In the same year the bishop died, and his body was laid in the crypt of the new church, from which it was afterwards removed to the Cathedral. Eleven years more went by before the church was entirely completed, and then in the year following it was struck by lightning, and a partial restoration had to be undertaken. For the course of a century the church was used for public worship, and was then visited by a great conflagration, after which it was rebuilt by the Abbot Theoderich, a native Hildesheimer and *magister artium*. In the year 1259 the two side aisles were rebuilt in Gothic style, and about the same time the ruined cloisters were restored by Abbot Gottschalk. The church suffered much damage in the epoch of the Reformation, and the appearance it presents to-day, therefore, differs widely even from the structure known at the beginning of the fourteenth century. Of the six towers, which stood originally one over each extremity of the two transepts, and two at the intersections of these with the nave, one only—that over the intersection of the eastern transept with the main body of the church—remains in its original size, while a portion of the one at the southeast angle of the building is to be seen. The others have all disappeared, most of them having been removed when their unsteady condition rendered them a menace to the rest of the edifice. The eastern choir has long since been turned into a sort of vestibule to the church by the piercing of a door through the thick wall: and the arms of the adjacent transept have been separated by interior walls from the aisles of the church, thus forming two rectangular chapels on either side of what is now the main entrance. The western transept is also divided in this way into two square compartments, with the chancel between them; on the north side by a low partition wall, surmounted by a balustrade of miniature columns connected by arches, between each arch a statuette in stucco, and a frieze above and below—the whole of good Romanesque workmanship of the time of Theoderich; on the south by a modern wall, rendered necessary for purposes of strengthening. The real choir is reached by a steep flight of steps from the middle section of the transept, now used as chancel, and is put to no use in the present arrangement of service. It stands directly over the crypt, which is still used as a Roman Catholic chapel, although the church, on the division of places of worship that followed the peaceable settlement of the Reformation, fell to the share of the Protestants and is now occupied by them. The old sexton, who told me of this arrangement, made a queer face when he mentioned it, and continued: "Yes, there is a spring down there, by the old bishop's grave, whose water, they say, cures cripples and rheumatics. I would not give much for it myself, but the peasants come to town on saints' days to drink it, and there is generally a pair of old crutches there that some one has left behind him, on going away cured." Later, when a little boy from the Catholic Orphan Home near by took us there, we found the crutches, sure enough. There was little else to see in the damp and dark underground chapel, except the sarcophagus of the sainted bishop, on which he is said to have worked himself, bearing for inscription the familiar "Scio quod redemptor meus vivit," etc.

The interior of the church is very beautiful. The roof is borne by pillars and columns, one of the former alternating with two of the latter, this being the original arrangement. The column



INTERIOR, ST. MICHAEL'S, HILDESHEIM.



INTERIOR, ST. MICHAELS.

capitals are either plain cubes, as was the earliest style, or else carved in the leaf and geometrical patterns characteristic of the art in its time of highest development; among the latter some of the richest work of the period is to be found. (Casts of some of these capitals may be seen in the Metropolitan Museum, New York.) Four of Bernward's original columns, all with cube capitals, are still in their places; the rest are of about a century later. The church has a flat wooden ceiling, which is decorated with frescoes of an antiquity greater than that of any other painting of the kind north of the Alps. The north aisle of the church was restored only at the beginning of the present century. Before that, a part of it served as a rope-maker's shop, and the lunatics from the adjoining asylum came in from that side, and danced in the high choir. Between the arches in the south aisle have been placed the curious stucco figures of the Beatitudes. They were taken down for restoration not long ago, and on being put back into place the restorers omitted to repaint the names on the scrolls, so that the tradition concerning them has been lost, and it is not easy to determine where the names belong. The Hildesheimers of to-day, so the sexton told me, are a rough lot, and it is not considered safe to keep the church open, except at time of service. This seems very strange, in view of the orderly, law-abiding crowds one meets with everywhere else in Germany, and I could not but suspect that the old fellow had been the victim of some practical jokes that made him unjustly suspicious of his fellow-townsmen. The church from without is not very beautiful, although quaint. The west choir, shut off from the church grounds by a high cross-wall, which serves as a boundary line between the two religions, shows Romanesque carving in the window lunettes, and a graceful frieze. This is the only decoration on the exterior of the church, and is to be viewed only from the little side street leading to the Asylum entrance. It is necessary to go through this in order to reach the cloisters, which date from the middle of the thirteenth century. They are in the transition style, Romanesque in form, but with pointed arching. The rich capitals of the columns are modern reproductions of the original.

For a perfect Romanesque church of the early style, we could ask nothing better than to be allowed to combine the interior of St. Michael's with the exterior of St. Godehard's. Very grand and imposing is the latter in its simple, majestic outlines. The best view of it is from the garden on the southwest, that from the rampart behind giving quite another and less characteristic impression. It needs to be looked up to, not down upon, for a complete realization of its force and beauty. It has less decoration even than the Michael's church—nothing but the scalloped friezes and a single high relief sculpture over a side-portal on the north—but the purity of its line and the massiveness of its structure convey an impression of solemnity and perpetuity, as well as of ideal beauty, that few churches combine in so marked a degree. In plan the church has many points of resemblance with St. Michael's, differing from it, however, in a few important particulars. Like St. Michael's, it is a three-aisled basilica with a flat wooden ceiling, the interior resting upon two lines of alternate pillars and double columns, the latter extremely rich in decoration, now unfortunately covered over with paint. Like St. Michael's, also, it has two choirs, a westward as well as an eastward one, this arrangement being demanded by the exigencies of the Benedictine form of worship. There is, however, but one transept, at the eastern end, so that the church has the form of a single, instead of a double cross. The side aisles are continued all the way around the eastern choir, and three large circular niches are thrown out from the aisle thus formed behind the chancel. This arrangement of the choir is often to be met with in French churches, but is foreign to the German builders, and Bishop Bernhard, who founded the church in 1133, is credited with having brought back the idea from the Council of Rheims. The church has three massive towers, two at the west end and one at the intersection of the transept with the nave. The interior



ST. GODEHARD CHURCH, HILDESHEIM.

was thoroughly restored in strict Romanesque style, between the years 1848–1863, the painting, which covers every inch of wall with bright colors, having been executed by Welter, of Cologne. The interior, accordingly, harmonizes, in its gaudiness, but ill with the majestic simplicity of the building itself—a fact the more to be deplored from the perfect harmony of proportion that prevails throughout.

The Godehard church stands by itself in an open ground close to the old wall of Hildesheim, now made into a pleasant promenade, walking upon which one can half circumvent the town. Opposite the west choir is an old building now used as the town prison, before which a solitary sentinel stands and keeps watch, while in its small square windows, provided with iron easements of a quaint pattern, one may catch a glimpse, occasionally, of the poor wretches confined there. The walls of this building descend straight, in the rear, into a swift brook—it is called a river in Hildesheim, I think—and over this on a bridge runs a road that enters the town through what was once the southern gate. If we forego the pleasure of a walk on the old rampart—which is pretty at any time, and must be delightful in summer when the broad trees cast their shade over it—there is a shorter way, through the *Hinter-Brühl*, of gaining the little Cathedral *platz*. The *Brühl* is a narrow little lane, running through a part of the town undisturbed by the encroachments of the modern style of house-building, and it grows still narrower in climbing the slight elevation to the Cathedral square, finally debouching upon it, if I remember aright, through a passage-way under a house. But once in the *Dom-platz*, as it is called, you will straightway forget how you came there in the sense of relief at finding yourself in so sure a haven of tranquility. In the middle stands the Cathedral—a fine, imposing church, two towers and a large, outstanding porch facing the west, and a smaller tower roofed, as the body of the church between, with sheet iron that has turned a bright green, at the eastern end. Opposite, at a respectful distance, are some simple residences, tiled and cross-timbered, arranged in the arc of a circle; at the farther end of the square some more imposing buildings, the palace of the Archbishop among them; and on the angle over against the church, a pretty old house, decorated in Renaissance style, and newly painted —used at present for I know not what purpose. Hidden from us where we stand is a pretty group of trees, nestling close to the church, in the centre of which rises the Bernward column, a very ancient piece of bronze work, on which in half relief are twenty-eight scenes from the life of Christ. A model of this is in the Metropolitan Museum in New York. There is an air of peace and remoteness about this little square, placed on a level of its own slightly above that of the rest of the town, and out of most lines of traffic, that makes it seem one of the quietest spots in the world. The great church imparts to it something of dignity and solemnity, and there is nothing on which the eye need rest that takes away from its character of semi-private repose.

If the church should not happen to be open, it is easy to knock at the door of one of the little houses opposite and the sexton, a smooth-faced, white-haired old man, looking like a benevolent priest, will place himself at your disposal. So many have been the changes through which the church has passed, so many the alterations and additions undertaken from time to time, that it is no exaggeration to say that the artistic creeds of eight centuries stand recorded upon its walls —only each style is imperfectly revealed, having been partially obliterated or disfigured by that of the succeeding age. The oldest portion is the crypt, built on the site of the original minster, destroyed by fire in 1046. Bishop Hezilo, a prelate of arrogant, imperious character, who fought a duel once with the Abbot of Fulda, in the presence of the Emperor, to decide which should occupy the seat of honor next to the Archbishop of Mayence, began the building of the Cathedral in the year 1055. The plan pursued was that exemplified in the other Hildesheim churches of which



INTERIOR, ST. GODEHARD, HILDESHEIM.

we have already spoken: a three-aisled basilica, namely, supported by alternate pillars and double columns. Towards the end of the eleventh century the lengthening of the choir was undertaken, and the cloisters, in late Romanesque style, were built in the first quarter of the fourteenth century, the beautiful Gothic chapel of St. Anne, very pure in style and elevated in feeling, was erected in the middle of the cloister court-yard. The side chapels in the Cathedral date from the last quarter of this century, the south aisle being late Gothic; and at the beginning of the next century Count Lippold von Steinberg built the north transept in richer development of the same style. The addition of the small tower, or cupola, over the intersection of the transept and nave, and the disfiguring of the interior with stucco decoration and wall and ceiling frescoes are the work of the last century.

Passing through the sacristy into the cloisters, one's eye is surprised and delighted at the beauty of the little court-yard. The cloisters, which encompass it on three sides, the cathedral choir, upon which the immortal rose-bush grows, occupying the fourth, are double-storied and of late Romanesque construction. Almost all the wall between the delicate arches of the upper story is covered with luxuriant ivy. Above this, a red tiled roof with double row of dormer windows affords a pleasing contrast of color. In the middle of this court-yard, as has been already mentioned, stands the beautiful little chapel of St. Anne. About it are grave-stones, some of great age and considerable artistic merit. That of the priest, Bruno, dating from the end of the twelfth century, shows the poor and the sick weeping for him, while his soul is borne by angels to Heaven. A bronze tablet of graceful Renaissance workmanship marks the resting-place of the Canonicus de Veltheim in the lower story of the cloisters, and two others, having their origin in the Romanesque time, preserve the memory of Bishop Adelog and Otto II. On the south side of the cloisters is the chapel of St. Lawrence, whose low vaulting is borne on round and octagonal columns.

It is now, perhaps, time to wend our way back to the little square, where in the evening dimness we caught our first glimpse of Hildesheim. The *Rathhaus* occupies the east side of it, on the south are the Templar and Wedekind houses, fine specimens of Hildesheim architecture, and on the northwest corner stands the imposing mansion of the Butchers' Guild. This square is the civic centre of Hildesheim, just as the *Dom-platz* is its ecclesiastical middle-point, and one may expect to find here a rich development of that timber-architecture, of which the town is one of the classic sites. The *Rathhaus* itself is the product of several different periods, and presents some odd dissimilarities of style, but the general effect is decidedly picturesque. The gables on the south-east end are the oldest part of the building, dating from the latter part of the fourteenth century, while the timber out-building, in the shape of a tower, at the other end, was added in the sixteenth century. The building has recently undergone a thorough renovation, and the great Gothic council-hall is now being decorated by Prell of Berlin with frescoes representing famous events in Hildesheim history. In front of the *Rathhaus* stands the pretty Roland's fountain, consisting of a basin, its sides carved with the half-figures of heroes, and a column rising in the centre, which bears the armed figure of the knight. The house of the Templars, built in 1457, in late-Gothic style, has two curious corner towers, connected by thin archings with the square top of the façade. It has a fine oriel, but the opening of a shop on the ground floor has not contributed to the picturesque effect. Separated only by a narrow alley is the Wedekind house, so-called from the name of its owner. This, with the Butchers' Guild house, a few yards away, is one of the best examples of the painted and carved timber buildings to be found in Hildesheim. Both are tall wooden structures, whose stories, supported on richly-carved consoles, project, one above the other, over the street. The Butchers' Guild house goes up into one high point, the gable turned toward the square; the Wede-



RATHHAUS, HILDESHEIM.



TEMPLAR AND WEDEKIND HOUSES—ON THE MARKET, HILDESHEIM.

kind house is turned the other way, but has three smaller gables on the side of the main one. Having come recently from Brunswick, we noticed how the Hildesheim houses, for the most part, have their gables turned to the street; while in Brunswick the opposite arrangement prevails. One of the chief attractions of these houses is, of course, the decorative carving that runs in broad bands across them, one for every story. This carving was first practised as an art in the Harz mountain district, where wood for building purposes has always abounded. The figures of men and animals and graceful arrangements of twining vine and other forms of vegetation are the favorite designs, and the same figures of the abstract virtues, all marked with their names, Caritas, Prudentia, Temperentia, Spes, Fortitudo, etc., may be seen upon some dozens of houses. Long inscriptions in German or Latin frequently accompany these designs. The picturesque effect is generally enhanced by the bright colors in which the carvings are painted. Within a few years a society has been formed in Hildesheim for the restoration of the old houses to their original state of painted splendor, and without cost to the present occupants most of the faded tints have been renewed. Where the carving is particularly delicate one feels that this could well have been dispensed with, but on the whole it must be admitted that the work has been well done. What is sometimes lost in beauty is gained in character. The Butchers' Guild house, which dates from the year 1529, but has more than once been restored, need fear comparison with no other building of its kind in Germany. The carving here is wonderfully delicate and minute, the pattern showing a wealth of graceful fancy.



TIMBER BUILDING, HILDESHEIM.

Quitting the market-place, it matters little which way we turn, we shall be sure to come upon quaint and delightful houses. Close around the corner in the Oster strasse is a fine old mansion, now fitted up as an inn and named ap-



DEUTCHES HAUS—OLD INN AT HILDESHEIM.

propriately "The Old German House." Its façade is quite covered over with carvings, which follow the story-levels, pursuing them around corners and into some curious angles. Among the figures on the carved friezes one discovers the four elements, Earth, Fire, Water and Air; old Roman divinities like Mercury, Venus, Saturn, Luna and Sol, and then a youth and an old man with a boy between them with a sand-glass, who bears the inscription *hodie mihi—cras tibi* (to-day is mine, to-morrow thine). These figures of the elements, like those of the abstract virtues, are perpetually recurring. In the neighboring Scheelen strasse are two curious buildings, the *Rathsbauhof*, erected in 1540, and the *Braunschweiger Hof*, of 1563. Some curious carving in low relief, of mystical subject, decorates the door of the first, while the façade of the second abounds in moralizing Latin inscriptions like *Omnes cinis æquat, sola distinguit virtus, Ardua quæ pulchra*, etc. The spirit of the Renaissance inspired the wealthy burghers with a taste for this sort of thing. Retracing our steps and passing again through the market-place, we emerge in a few moments upon the *Hohenweg*, or highway, one of Hildesheim's chief thoroughfares. Many of the houses here have coats of arms, mottoes and inscriptions, and some of the older ones bear testimony to the different spirit that prevailed at their inception, in the religious subject of their carvings. These date from the Gothic period. Where nearly every house presents some feature curious to modern eyes, it is difficult to pick out anything for particular description. At the corner of the Hohenweg and the Rathhaus strasse is the *Rathsapotheke*, or establishment of the Apothecary to the Council. The lower part is of stone, containing the Hildesheim arms and the date 1656; then comes the timber-building, the upper stories of which advance far over the street. The corner building is the part actually occupied by the apothecary, a Rococo shield and arms over the door being supplemented with the inscription *Eines hochedlen Rathes Apotheke MDCCLXIII* (Apothecary of a very noble Council, 1763). The façade on the highway bears a long Latin inscription, and on the side street a German one in verse describes how the previous building was destroyed by fire on St. Bartholomew's day with all it contained, but how before the rising of the Christmas moon a wise Council had restored it in better style than before. Over a small door is the inscription:

> Wilt du Artzny oder süsse Wein
> So Geh dar die zu finden sein.
> Zwo ander Thür dir offen stan
> Zu Rath hir geht der Oldermann.*

Through a narrow passage-way from the highway, one enters the St. Andreas-platz, where several old houses will be found, in the language of the guide-books, "worthy of inspection." On one of these the carvings represent two men driving in a carriage to Heaven, while near them a boy sits astride of an eagle, and a woman is mounted on the back of some sea monster. On the house next this one, an inscription reads "Oh God, how it always happens that those hate me to whom I am doing nothing, that they grant me nothing and give me nothing, but still must suffer me to live. If they think I am ruined, they had better look out for themselves, but I trust God and do not despair—to them that deserve it, good luck comes every day." A few steps further on is the old Trinity Hospital. The two rows of consoles bear statuettes of various saints and apostles, the spaces between them being filled by modern frescoes of biblical subjects. The house is now an iron foundry. The so-called Arrow-house, built in 1623, has figures of the muses and virtues, besides some half-obliterated inscriptions. Then on the east side of the platz, the Grocers' Guild house, bearing date 1482, has a carved vine-pattern, with figures of saints and various coats of arms.

Turning down a narrow side street, at the end of which a charming glimpse of St. Michael's may be had, we find ourselves in the *Langerhagen* close to one of the show places of Hil-

*If you seek physic or sweet wine, go over there where they are to be had. Two other doors are open to you, through this one goes the Alderman to council.



A TIMBER BUILDING, HILDESHEIM.



KNOCHENBAUERAMTS HAUS, HILDESHEIM.

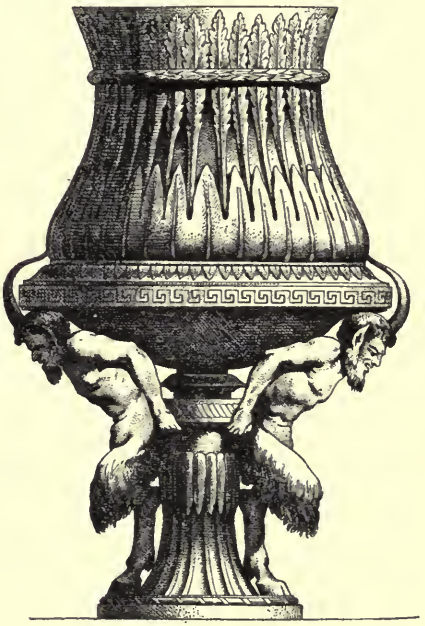
desheim—the "Emperor" or "Roman" house. The ground building is of stone. In the spaces between the large windows of the first story, separated by columns projecting singly and in pairs, are four statues of Roman emperors. Underneath them runs a freize representing hunting scenes. Beneath this the wall is covered with three rows of round spaces or medallions, each inclosing the carved portrait of an emperor, with inscription giving his name and order in history. There are forty-six of these medallions in all. The side of the house turned to the wide courtyard is also richly decorated, but in a much less systematic way. It seems probable that a larger establishment had been intended, and that, the plan coming to naught, the already prepared decorations were placed pell-mell in their present positions. Though curious and probably unique in its way, the house does not please by reason of its pretentiousness, and one turns with relief to the modest, high-gabled houses about it, that harmonize so much better with the quiet back street.

One might wander for hours about the Hildesheim streets, always finding something new and interesting to talk about. It is particularly surprising to find people still living in these old houses, which ought, from their appearance, to be inhabited by no generation later than Goethe's Gretchen. One half expects them to fade away before his eyes, as the forms they call up—Gretchen and her immortal lover, Dame Martha and brave Valentine—pass from the brain. Doubtless there are modern Gretchens living now within these old walls, Dame Marthas in plenty, fewer Fausts perhaps, but more than one Valentine, for the German youth is still a soldier, combining military virtues with a strong sentiment for the sanctity of his home. Many of the houses tell in their carvings the employment of their owners. Over an ancient tavern in the centre of the town I saw a series of four reliefs, the first of which displayed a merman drinking deep from a horn; in the second, he had had enough, but had not thrown the vessel away; in the third, he had had decidedly too much; and in the fourth, he was getting rid of it again. You see, the old German humor, like the old German ale, was rather strong in the palate, to our modern taste.

It would take a week of close attention to sight-seeing to exhaust all the wonders of Hildesheim. We cannot attempt a description of them here. But there is a little pilgrimage that ought not to be omitted, to the old Moritz church, which stands on a slight eminence overlooking the town. On the way is a hideous modern villa, offered some years ago, as a testimonial of regard to Dr. Windthorst, the leader of the Catholic party in Parliament, but somewhat ungraciously declined by him. The church is one of the oldest buildings in Hildesheim—a basilica in form, and the only one in North Germany whose interior is borne entirely on columns. A tower erected in 1765 directly over the choir, is a beacon visible for many miles around. The pilgrim will do better not to go in, the church having been disfigured with the tasteless stucco ornamentation of the last century, but let him not neglect to visit the little cloister-court, full of weeds and wild flowers that lend it an air of picturesque desertion. The view from the hill is the best to be had of Hildesheim, and is quite necessary to straighten out one's ideas of direction, which have become painfully confused in winding through the crooked streets. The town itself is a mass of red—the tint of the tiled roofs largely dominating every other, and only broken in upon by the gray church spires. The green valley forms a fitting background, through which the tiny river Innerste runs, a silver thread. Round about are the out-spurs of the Hartz mountains, of which some of the higher peaks may be seen to the south on a clear day. The scene is not magnificent, but it has a certain beauty of that quiet, domestic order which the Germans seem to prefer to grander aspects of nature. With a last look from this hill, where her citizens are fond of coming with their families on a Sunday afternoon to drink beer or coffee, and to listen to the strains of a band placed in a pavilion behind the trees, let us take leave of Hildesheim. The happy, healthful

faces testify to the era of solid prosperity that has dawned anew upon the ancient city; and the care with which their treasures are preserved shows reverence, at least, for the art so cherished by their ancestors.

J. Kirke Paulding.





GREENWICH HOSPITAL.



BANQUETING HOUSE, WHITEHALL, LONDON.

RECENT DEVELOPMENT OF EARLY RENAISSANCE IN ENGLAND.

TO understand the rise and probable progress of this movement in England requires some knowledge of previous architectural history in this country, particularly of our own form of classical architecture.

That the Renaissance, late as well as early, took a native form in all the various countries of Europe is a fact which will hardly be denied nowadays when that period is better appreciated than was possible during the late Gothic Revival.

The specially English form of the late Renaissance began with Inigo Jones, during the reign of James I and Charles I, when he introduced the style of Palladio, which he had studied so closely at Vincenza and Venice, and our school has always followed, in the main, that master, rather than Vignola, who became the patron of the French school. Jones' successor, Sir Christopher Wren, had more French leanings, owing to his travels having been confined to France; but this tendency is only in matter of detail, for St. Paul's and his other great works are Anglo-Palladian in form. The next great master was Sir William Chambers, whose executed design of Somerset House in London, has remained a constant exemplar of the style as applied to secular purposes.

After Chambers, there set in a period of decline, due to the slavish copying of Greek work, then newly discovered and published, and this decline continued to the end of the eighteenth century, being further accentuated by the isolation of England during the Napoleonic wars. Peace returning,



SOMERSET HOUSE.

travel recommenced, and among the travellers, was Sir (then Mr.) Chas. Barry, whose extensive tour included Egypt, Greece and Italy. His Egyptian studies brought him to Italy with fresh eyes, and in the Roman and Florentine palaces, as, for instance, the Farnese and Pandolphini, he saw the elements of a new development in English classic.

Now, the modern cry is "light, more light" and to provide this, means an essential change of style, for large windows, undivided by mullions are destructive of scale, and a mullioned window means, as a rule, a freer treatment of the orders, owing partially to the necessary wide spacing.



TRAVELERS' AND REFORM CLUBS.

The essential ideas of this style were the practical abolition of the Palladian orders in favor of a grand crowning cornice and the use of rich window dressings contrasted with the plain space between, below, and above. It is needless to say this new treatment started a craze, and numberless are the buildings of all classes erected in imitation of the Travelers and Reform clubs, the two masterpieces of Sir Chas. Barry. The tendency, however, of modern progress is running altogether against such work, since it is essentially a small window style, for, to make the intervals between the windows less than the total width of the window with its dressings, and to reduce the proportional space above and below them is to destroy the character of the style.

It is an old observation that styles are based on roofs, windows, and doors, and the first of these has perhaps the largest influence. Now, our Gothic history and northern climate have given us an innate love of roofs, in which Barry fully shared, and his first classic works had low pitched visible roofs; but we may suppose he felt a want of harmony, for the fact remains, that his later works have none. Nor can we call the earlier low roofs, often composed of large slabs of slate, a frank roof treatment, and if we imagine the usual high roofs on such buildings we can at once see what a change in the style becomes necessary. Considering then, this situation of the old Anglo-classic school, and bearing in



NEW POLICE OFFICES, SCOTLAND YARD.

SHAW.

mind the fact that the practical failure of the Gothic revival movement for secular buildings had forced its leaders to adopt a more modern expression of modern wants, what other causes of the early Renaissance movement need we look for?

Here we must revert for a moment to what took place on the break down of our historical Gothic development in the reign of Henry VIII; for it is in many respects a similar situation.

That our noble Gothic had reached its climax is now generally admitted, and the non-adoption of the new Italian elements, then being imported, is as inconceivable as the non-adoption of the Norman ideas, by the Saxon architects, in the reign of Edward the Confessor.

The style produced by the admixture of Italian details, with a foundation of Gothic building, has various phases and names, such as Tudor, Elizabethan, and Jacobean, and our purpose will not now allow us to enter into that subject in detail; but our readers should consult a splendid collection of permanent photographs of this work from 1560 to 1630, now being published under the direction of Messrs. Gotch & Talbot, a book which is likely to exercise considerable influence on our future work. As a style, it is enough to say that high roofs are the rule, and that it even errs in excess of window lighting, while the orders and other Italian details are used in the most free and reckless fashion.

That it has an essentially Gothic foundation is proved, we think, by the failure of former efforts to revive it at a time when a true Gothic feeling was wanting, for it is a fact, often overlooked, that Sir Gilbert Scott practised it for his early buildings before he took up the gospel of Gothic Art.

Mr. Blore also, and Mr. Henry Shaw built houses intended to be examples of the style. It was, however, approached from the classic side, and the buildings of this date are more like watered-down classic than the bold and lawless erections of the historical period. Hence, the new revival by the men who have been trained in the Gothic school and in a society which passed thro' a Gothic fever, and became acquainted with Gothic ideas, however much toned down for nineteenth century use, is more likely to meet with success.

This movement, however, is already threatened by the reviving forces of the Anglo-classic. No one acquainted with the past work of that school will fail to see how much it is influencing our present work. What, for instance, do not Mr. Norman Shaw's new police offices on the Thames embankment owe to it, a sturdy, yet, startlingly original building. Still its gravity and strength are of the very type which is so characteristic of the English classic. And in one or two recent great competitions, even more closely historical examples were offered, both for the Imperial Institute and for our new South Kensington Museum buildings. For the former Dr. Rowand Anderson proposed even so reactionary a feature as the typical eighteenth century portico of two stories in height, on the usual basement, as the central projecting feature of his design. And, in the latter, Mr. Macartney had the courage to imagine a museum for the nineteenth century, based on Newgate prison, that masterpiece of prison architecture by George Dance, who designed its windowless façades of a bold, rough, rusticated masonry in harmony with the ideas evoked by the name of prison.

Another architect who preaches the gospel of Anglo-classic by pen and pencil is Mr. Brydon, whose buildings are marked by a thorough grasp of the style he practices; while at present at least, he avoids the characteristic failings of the period. In fact, if the designers of this school are to win the mastery, they must solve the problems of a symmetry not pedantic, of shams agreed to be offensive, and of an outward expression of internal wants, neither excessive like our modern Gothic, nor ignored as in too many of the buildings they propose to imitate.

We are afraid our American readers will here leave us with the cry: but why all this historical treatment?, why imitate at all?, to which we reply that our atmosphere is charged with too much of the past.

Art is truly free, but what has been, will be, and we shall move on the lines

of the past for the work of the future. You, in a new country, with new wants, may evolve new treatments of your own wants, and in time we may graft your new ideas and our older practice.

Having, then, seen what new forces are moving against the early Renaissance development, let us see how the latter movement is at present situated. The large competitions held at intervals are convenient tests of the movements of the time. Here appear the new phases and here they win their first recognition.

It would, however, be a grievous error to take them too seriously; the real movements are very slow and gradual, though the surface agitation may be great. Thus some of us have been of late only too ready to cry "Spanish" as a new fashion for the sake of some freshness of detail and idea, and some of our students are inclined to turn their attention in that direction. For in a students' competition, a year or two ago, a clever student, since unfortunately deceased, attracted much attention by a design of Spanish Renaissance character.

Moreover, several students have lately been touring there, and there has been a rumor of a book of such detail. Italy, however, has been and will continue to be the great school of students, and its early Renaissance, as well as the better known later work, has always been much studied. A book of Italian detail by Mr. Oakeshott, who was sent on a special tour by one of the building papers of London, will probably have some influence, and in some designs of late, such detail has been used. Much of this study of Italian detail in England is undoubtedly due to the splendid collection of specimens at the South Kensington Museum, where the architectural exhibits are mainly of that period.



NEWGATE PRISON.

The Italian form, however, of the early Renaissance, has a strong rival in that of France, more especially in the magnificent châteaux which line the valley of the Loire.

An architectural writer, the Rev. Charles Petit,* first drew attention to these buildings, and despairing of the

* See Book Announcements in the front of this magazine.



EXTERIOR OF BIRMINGHAM LAW COURTS.



INTERIOR OF BIRMINGHAM LAW COURTS.

Gothic revival then in progress, called on architects to study them, as a compromise of classical and Gothic art.

The Birmingham Law Courts, just completed by Messrs. Aston Webb and Ingress Bell, exhibit most clearly this influence. Being of terra-cotta, yellow inside and red outside, the architects have been enabled to indulge in a profusion of detail, mostly of an early French character, yet often purely original in its application.

The grouping of the building is Gothic, while that of the plan is classic, a combination first used by Sir Chas. Barry in the Houses of Parliament, and since that time much favored amongst us. A design of a similar character, but more regular in grouping and severe in its main lines, was submitted by the same architects for the Imperial Institute, possessing, however, the same boundless profusion of detail of the early French type. Their design, however, was not accepted, but in the subsequent competition for the completion of the South Kensington Museum, Mr. Aston Webb has adopted a somewhat similar treatment, but with terra-cotta low domes to his pavilions, and for the central feature a low tower, having a plain stalk below, and rich tapering crown above in accordance with the prevailing fashion of tower design. This fashion finds an even more pronounced expression in the central tower of the Imperial Institute now being built; the selected design of which by Mr. T. E. Colcutt, F. R. I. B. A., is, however, more Italian in detail and character, though very free in grouping.



ROYAL ENGLISH OPERA HOUSE.

It adopts in fact, a new form for a public building in point of grouping, being broken up into three advanced portions: the central and two wings,



CITY OF LONDON SCHOOL.

which all project so far as to take a gable on the return, and the connection of the parts is only maintained by this lofty square central tower carried up as a plain stalk for a great height, and terminated by a kind of loggia story, domed in copper. In this building the details are of the smallest, and a striking feature is the finish of the main gables, the apex being enclosed in a sort of cage of columns and entablature on the smallest scale.

Whether this kind of bric-á-brac detail is the result of the attention we have been paying to such subjects is a question too long to discuss in this article, nor can we here allude to the alliance of sculpture and architecture illustrated in that building. The façade of the new Royal English Opera House by the same architect is an extension of the same principle. The influence of this early Renaissance movement on sculpture must be dealt with in another article.

We have been led to speak of this latter building by its proximity to the South Kensington Museum, but we did not mean to omit, as an instance of another and somewhat later type of the French Renaissance, the design of Sir Arthur Blomfield for the same Imperial Institute the main feature of which was a central domed octagonal structure with the side wings hipped back from it pavilion-wise, reminding us of the Architect Delorme and the Tuileries; this form of French work has, however, found little acceptance with us hitherto, but is well exemplified in the fine façade of the City of London School on the Thames embankment.

But there is, besides the early French and the Italian described above, the influence of the early Renaissance in England, as exemplified at Oxford, and elsewhere to be described. In the examination schools of that unique city, Mr. J. G. Jackson has given us a building full of local character and feeling,

which has a larger Gothic element, perhaps, than is found elsewhere. Mr. Jackson's various other additions to the old colleges are also, either of this, or of a more purely Gothic character. In a place like Oxford where the church element is so strong, the special preference for the Gothic as the more suitable and historical style for church astical work mentioned above. Our movement then in the direction of early Renaissance work has not yet touched the church, and, except in a few minor details, and one or two purely exceptional churches, we may say that all is Gothic so far. In our country houses, a subject we hope to describe more fully hereafter, the Gothic ele-



EXAMINATION SCHOOLS, OXFORD.

building finds naturally a free expression, and no essay on English architecture can be complete, without a reference to the almost absolute supremacy of Gothic for churches, which being perhaps the most monumental form of every-day building, naturally exercises the greatest influence on all other work. Nothing is more certain than that no school of mere academical architecture would be sufficiently comprehensive for English architectural training, which must embrace forms of work suited to public, private, town, and country buildings, besides the ecclesiment is naturally stronger than in town, but the happy compromise invented by Mr. Norman Shaw of a late Gothic simple, mullioned, gabled exterior, combined with Renaissance joinery, fittings and other details of any degree of suitable richness, has been the foundation of that school of domestic architecture which is likely to pervade the civilized world, and which has not been without its effect in America, and is well exemplified in Dawpool by Mr. Norman Shaw. Here the academy is vanquished and the Anglo-Saxon world rejoices in homes



EXTERIOR OF DAWPOOL.



FIREPLACE IN DAWPOOL.

of its own creating, and from such homes is likely to arise the love for, and belief in, the future progress of architecture. If we build well the home, good church and public building will eventually follow, for all true architecture is but the expression of national wants and feelings, and the nation begins in the family.

Banister F. Fletcher, A.R.I.B.A.



CATHEDRAL OF ST. JOHN THE DIVINE. Heins & Lafarge, Architects.



SOUTH ELEVATION.

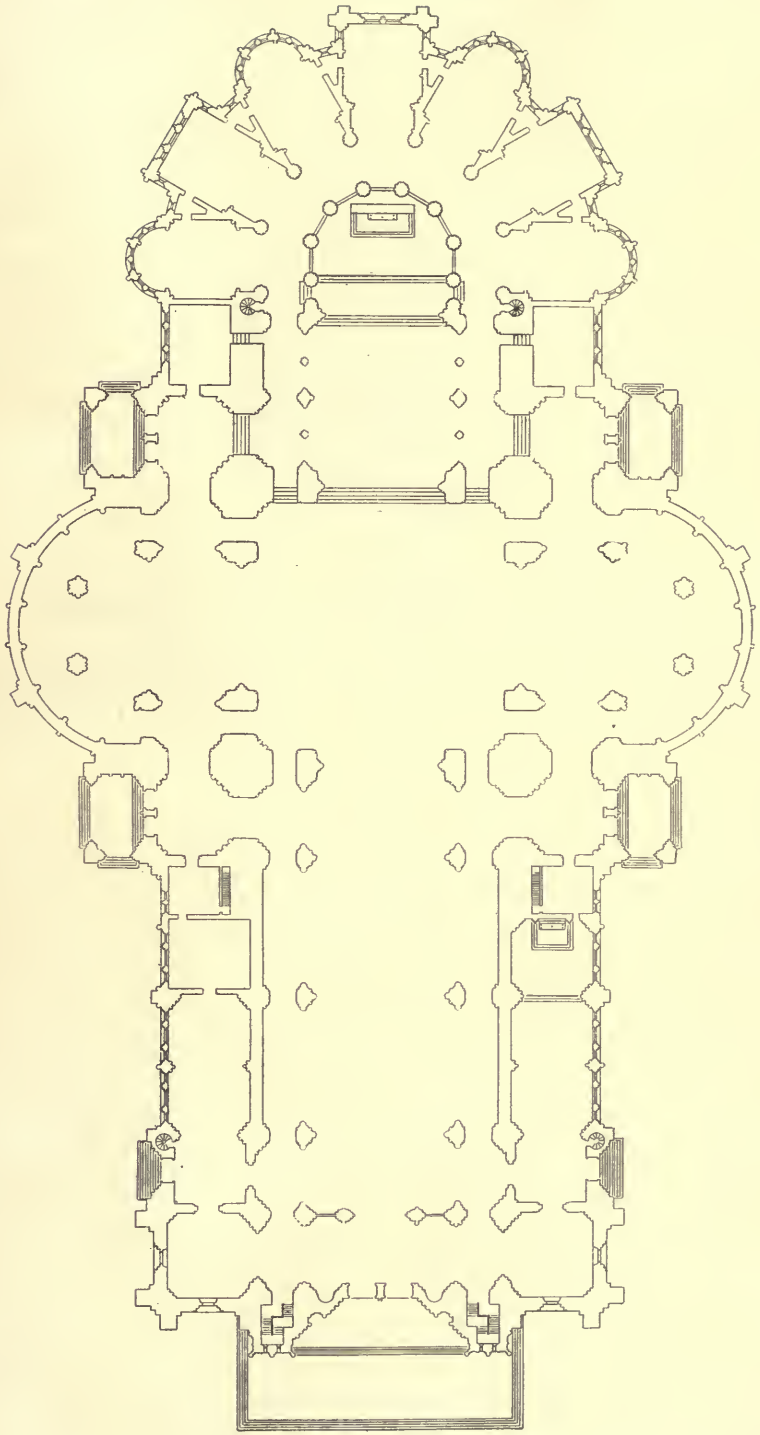
THE CATHEDRAL OF ST. JOHN THE DIVINE.

HEREWITH we present to our readers the accepted plans for the Cathedral of St. John the Divine so far as they have been matured. Though this publication represents them in a more advanced stage towards completion than any other that has been made the architect will not fail to observe that they are not fully matured and that the drawings, made at different periods and representing considerable modifications of the original scheme, do not, even at all essential points, agree with each other. For example, the difference that appears in the perspective sketch of the choir as a separate fragment and in the rear elevation of the cathedral are more than differences of detail and represent a considerable change in the general massing of the building. It will doubtless be safe where such discrepancies appear to assume that the geometrical drawings represent the most matured thought of the designers.

Certainly these drawings represent a wide departure from the accepted notion of a cathedral. In the mediæval cathedral the exigencies of vaulting control the entire plan. The outer line of the building is fixed by the ultimate buttresses of the nave vault, the position of these is dictated by mechanical considerations and the aisels are the spaces accruing between this line and the line of the nave-vaulting itself. In the disposition of the parts there is no room for artistic caprice. Everything is as it must be and, to translate that phrase literally, but yet with an increase of significance, everything is *comme il faut*. The architecture is the exposition, more or less clear, more or less eloquent, according to the ability of the designer of the mechanical conditions of his work. It is this fact



VIEW OF CHOIR.



GROUND PLAN.



MAIN LONGITUDINAL SECTION.

which gives to a Gothic cathedral its analogy to a natural organism and makes Emerson's famous lines in "The Problem" more literally true than the poet knew:

> "These temples grew as grows the grass;
> Art might obey, but not surpass;
> The passive master lent his hand
> To the vast soul that o'er him planned."

A cathedral without groined vaulting and so without the system of buttresses and flying buttresses which groined vaulting involves must be a very different thing from what we know historically as a cathedral, and it cannot be an example of Gothic architecture.

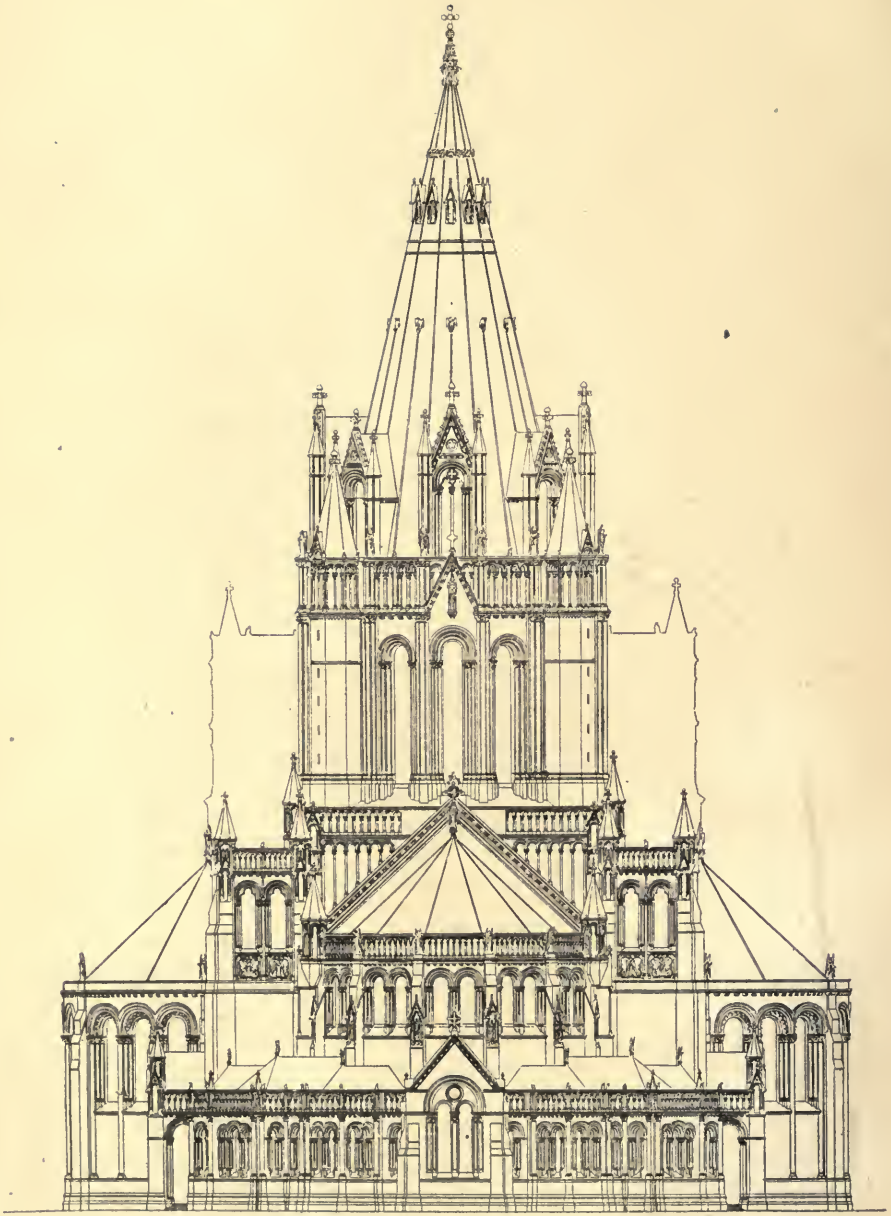
The dome is doubtless as legitimate a method of durably covering a space as a vault. It has indeed one advantage, and that is that the ceiling may be visible exteriorly as the roof. It is a reasonable reproach against Gothic that, while the vault was the generating principle of the whole structure and determined its general form and even its detail, it was not exhibited in the exterior architecture, but left to be inferred from the appliances that were exhibited for its support and its abutment. Above the monumental roof of masonry the architects of the Middle Ages found it practically necessary to construct a less monumental roof which masked the vaulting. In Spain alone was the vaulting merely protected and exhibited as the covering of the church, for the only example of a masonry roof in Northern Europe, the pointed tunnel-vault of Roslyn Chapel, is admitted to be of Spanish derivation. It cannot be said, however, that the innovation of the Spanish builders was artistically successful. The roof of Seville is simply invisible, except from a point above it, and the lack of a visible roof is one of the defects that give the great church the impression of an almost total lack of exterior architecture. But the domical covering also presents its difficulties as the visible roof and crown of a con-



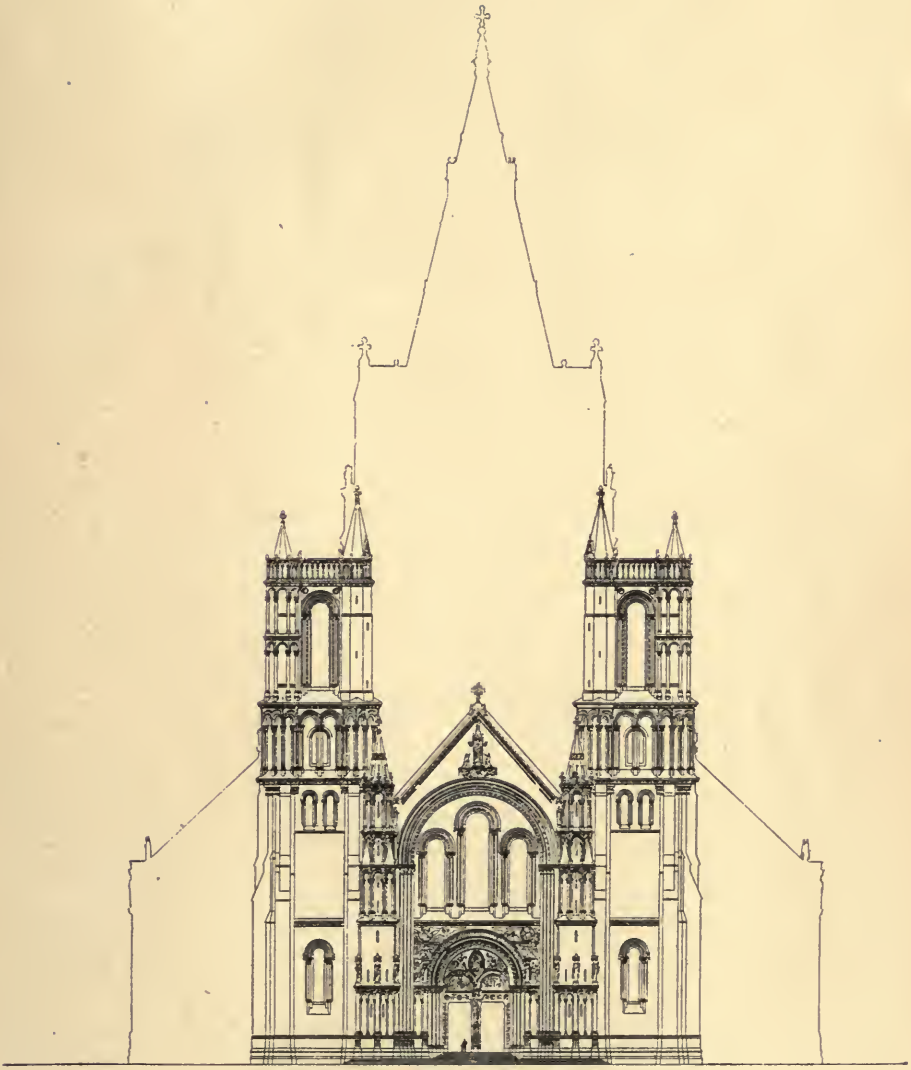
MAIN TRANSVERSE SECTION AND SECTION THROUGH TRANSEPT.

struction. The Roman and the true Byzantine domes, as represented respectively in the Pantheon and in St Sophia, are true roofs as well as ceilings. In each case, however, the roof is too low to form an adequate culmination of the exterior architecture, although it is lofty enough for impressiveness in the interior. The desire to make it tell more effectively on the outside led the builders of St. Mark's in Venice and the builders of the mosques and all the other dome-builders whose prototype was St. Sophia, to construct double domes, of which one was to be an exterior and one an interior feature, and which enabled the Mahometan architects in Asia, released by the employment of un-monumental materials from the exigencies of structural design, to erect the fantastic and bulbous cupolas that crown their works. The architects of the Italian Renaissance may be said to have solved the problem of a monumental dome, which should be a crowning feature both internally and externally, and, after Brunelleschi and Bramante, the double dome with the brick pyramid of St. Paul's in London appears a makeshift and a retrogression.

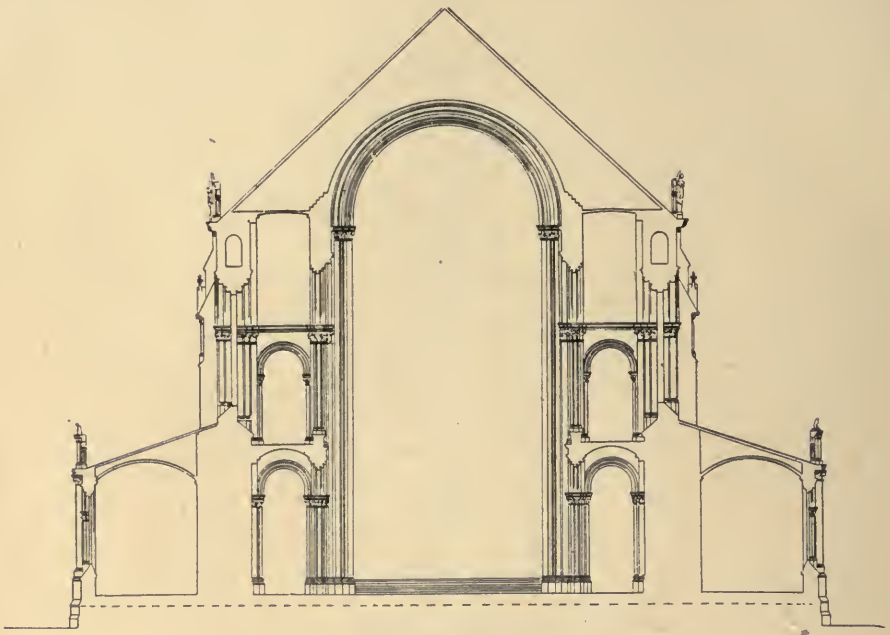
The dome, which is the central feature of the new cathedral internally, is covered and masked by the tower, which is the central feature exteriorly. The space covered by the dome and its



EAST ELEVATION.



WEST ELEVATION.

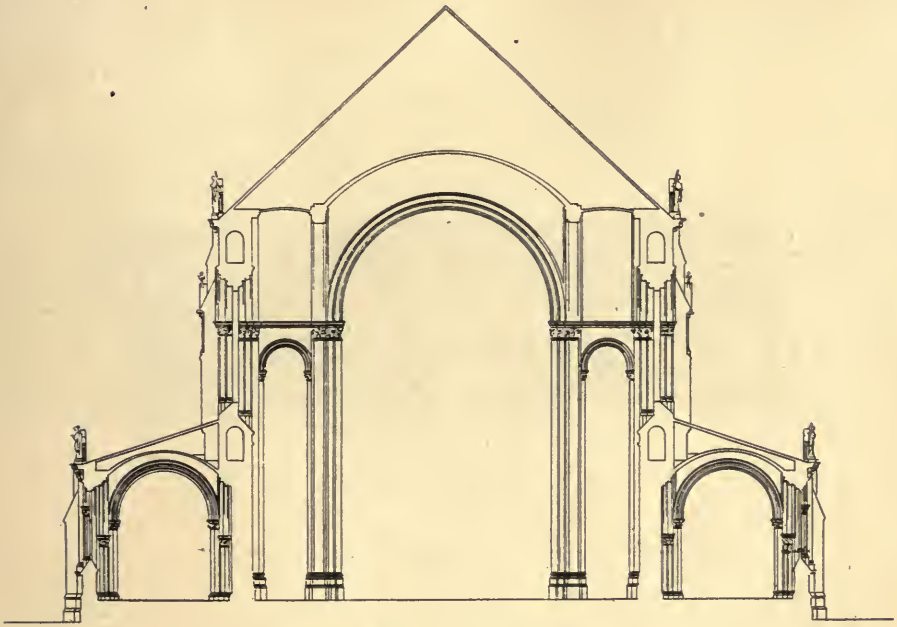


SECTION THROUGH CHOIR.

immediate appendages, including the transepts and the choir, is practically the cathedral, the nave being but an impressive approach. The whole space occupied by the transepts is available as a vast auditorium, and the one great difference between a modern and a mediæval cathedral is thus recognized and provided for, as it was, more or less successfully, in nearly all the competing plans.

As we have intimated, the scheme of construction, which contemplates a domical covering not only for the crossing but for each of the bays of the same, while the choir is ceiled with a barrel vault succeeded by a semi-dome, is by no means Gothic. It is very possibly an ecclesiastical rather than an architectural feeling that has led to the clothing of such a structure in forms that give it the general aspect of a Gothic church. This aspect it derives almost wholly from the treatment of the towers. The aisles are not, as in Gothic, the spaces between the nave piers and the ultimate buttresses. Indeed, the outer aisle is a cloister, walled off from the interior, and the comparatively slight thrust of the very light tile-arch used in the covering of the nave is resisted within the walls. Flying buttresses are thus rendered superfluous, and the main wall, instead of being a mere screen, as in the Gothic cathedrals, is a real and massive wall which supports the entire structure.

For the exterior effect, it is fortunate, we think, that the trustees should have decided to give the cathedral its true orientation, so that the western front really faces the west and the apse, with its ring of chapels, the east. The view to be mainly considered, and from which the cathedral will be most conspicuous and dominating is, of course, that from the east, from the lowlands beneath the plateau upon which it is to stand. The only argument for placing the flank along the edge of the plateau, as was at first proposed, is that more of the church can thus be seen at once. But the thing to be aimed at, it seems to us, is that the church shall really crown the cliff and produce the effect that is so striking in Mont Saint Michel and in the cathedral of Limburg-on-the-Lahn, and this is much more decisively to be attained by the presentation of a



SECTION THROUGH NAVE.

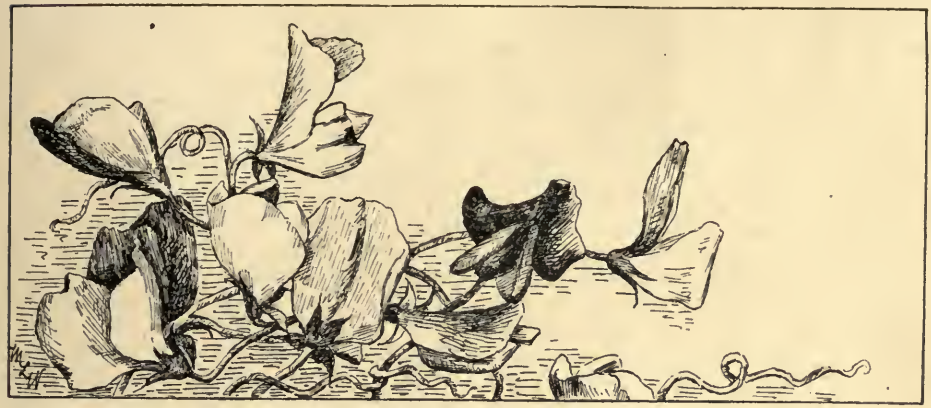
symmetrical and pyramidal mass, such as is presented by the apse of the cathedral than by the exposure of the long side. The massing of this apse has been studied with high and successful skill. The ring of chapels forms a terrace behind which rises the apse, flanked by its low and flat-topped towers, and again by the sloping lines of the transept-roofs, and from this ample base emerges the pyramid of the large tower. It was a very happy thought to alternate square and rounded faces in the ring of chapels, and thus to secure the feeling of security and stability that in a Gothic chevet is given by the interpolation of the buttresses. The treatment of the transepts, too, is admirably adapted to contribute to the supremacy and effectiveness of the great tower. The lofty gabled transept of a Gothic cathedral loses its value when there is anything more important than a light *flèche* at the crossing. By rounding these in plan and hipping back the roofs, not only is the transept taken out of competition with the central mass, but value and detachment are given to the low flanking towers which carry the lines of the central tower outward and onward. As a picturesque object and considered by itself, the central tower will leave little to be desired, if the effect of its admirable massing is supplemented by effective detail. But from another point of view, it will leave something to be desired, and that is as the outcome and expression of a dome, of which it now appears as a graceful and ingenious mask. It is possible that the architects may see their way, in the years that must intervene before the crowning feature of the cathedral comes to be built, to a design for it that shall not only result in an impressive object, but shall be the solution of a very trying architectural problem.



WHERE THE SHIPS COME IN.

HERE, where the ships come in, I do not wait
For thy return Love; my heart knows its fate.
To the wide world beyond my life you sailed,
Sailed, for much mightier influences prevailed
Than my poor love—the worship of a heart
That could not break, nor use the accents of a nobler part
Than that of slave—a beggar offering with a trembling mien
A paltry coin, but treasured, for the affection of a queen.
Oh, had she touched my life with love—Oh, Life thou little thing,
If she had drawn thee close, close as but love can bring
Two lives, the strength that grips thy nerves, the stir
Within thy heart at times, declare, meseems,
Thou might'st have seized the richest gold within thy dreams
As crown for her.
Thy folly mocks thee, Fool. It is a sin,
Aught but thy silent love. No ships bring hope to thee;
But, it is sweet to watch their phantom-coming in:
They carry too and fro thy heart upon the sea.

Harry W. Desmond.



NEW YORK FLATS AND FRENCH FLATS.



IT seems impossible to treat the advent and growth of the tenement system of living among us without considering it under the social aspects which must so largely affect the mere architectural side of the question. In France, where the custom of living in flats is immemorial, the whole system of building and the division of land are suited to the erection of apartment houses. With us, on the contrary, our narrow lots and our flimsy style of construction are intended for the rapid and economical erection of small private dwelling-houses that rarely outlast the lives of their builders. Even Yankee ingenuity could not devise several complete apartments all on one level and properly lighted and ventilated on a space intended for the building of a single home, nor could our light lath-and-plaster mode of building stand the wear and tear and afford adequate safety in case of fire, or the proper isolation as regards sound, smells and insect life required in a large building, occupied by several families.

But the difficulties we have to contend with are not limited to the erection of appropriate structures. In France the social status of each individual is generally so clearly defined that a freedom of intercourse exists between the various classes of society, utterly unknown in this country. Poor artisans frequently occupy the upper floors of houses the lower floors of which are rented to people of high social standing. All meet on the common stairs, and the fine lady exchanges cheerful greetings with her poorer neighbors without a thought of presumption on their part or of condescension on her own. With us things are different. All claims to social superiority are bitterly resented by people who regard the elevation of those above them as a mere accident of fortune that a day may reverse, while the favored few strive, through an excessive exclusiveness, to guard their dearly-cherished state of exaltation.

Let us take two apartment houses of about the same grade, one a "first-class French flat" on ——— street, New York City, occupied for some two and a-half years by intimate friends of ours, and the other a Parisian apartment we ourselves once lived in, and see in what respects the buildings, occupants and social surroundings differ in the two countries.

The New York house is of the ordinary type known as a first-class French flat, 21 feet wide by 80 feet deep, five stories high, and situated on a good street built up solidly with houses of the same character, a few of which are double houses—that is, houses 25 feet

wide and with two apartments on each floor. The internal arrangements need hardly be described. A front parlor and adjoining hall-room, two centre rooms lighted, or rather ventilated, on a diamond-shaped open well used in common with the adjoining house, a dining-room, kitchen, small room for servant, and a bath-room ventilated on a shaft.

We, as supposed experts, were called upon by our friends to pass upon the merits of the building, and having duly examined the pipes and traps, pounded the floors, etc., pronounced it a well-built, fairly well-planned and desirable dwelling-place. Our friends took the third floor, and we partook of a delightful little dinner given in honor of their installation. At first all was *coleur de rose*, the house was brand new and so prettily trimmed and decorated, so replete with ingenious contrivances, and so pure and fresh, with a delightful smell of new varnish, that our friends became enthusiastic in praises of their new home. When other tenants moved in we were told that every motion of the people above and below was rather too plainly heard, also that the tenants on the top floor had two somewhat rough and ill-bred boys, who nearly upset our friend's wife one day in their wild rush down the narrow public stairs, and who would not rub their feet on the front door mat, but left prints of their dirty boots all the way up on the bright Brussels carpet that covered the stairs and landings, and when their mother, a handsome, fashionably-dressed woman, with a whole jewelry shop on her plump fingers, was given a gentle hint regarding the matter, she said "that they had as good a right to the use of the stairs as folks living on the lower floors, and paid well-nigh the same rent anyhow." Still, on the whole, the tenants in the house were quiet, well-behaved, well-dressed people, with no small claim to gentility, and our friends wisely remarked that they could not expect to have a five-story house all to themselves for $40 per month.

With the warm weather in May and June, a somewhat objectionable feature, inseparable from flats built in streets, forced itself on our friend's attention. We mean the great density of the population, especially of the little Lord Fauntleroy and other juvenile types, and the tendency of many of the tenants to make parlors of, and hold receptions on, the stoops. As our friends, however, closed their flat and moved into the country for the summer months, the thing did not so greatly trouble them. Another feature which struck them was the sudden appearance of prominent placards with "First-Class Apartments to Let" on every stoop and front in the block. This they found was owing to the fact that most of the tenants were too genteel to spend their summer in town, and too weak financially to pay rent for apartments they did not occupy; so that an exodus of a large part of the population took place, and upon their return in the fall they found one-half the *personnel* of their own particular building entirely changed.

The first serious disenchantment occurred when a maiden aunt came on a visit, and was given the centre room back of the parlor. Until now the two centre rooms had been empty, one being used as a store-room and the other, prettily furnished with a patent folding bed just like a book-case, being reserved as a spare-room and dignified with the name of "the library." It now became evident that a space 10x12, fenced off from a parlor by glass sliding doors, with a window on an inclosed well and overlooked by three other windows, one of them not over 5 feet distant in the adjoining house, and used as a passage-way from the front to the rear part of the apartment, hardly complied with the general idea that the *first requirement of a bed-chamber is privacy.* Still, the people on the opposite side of the well were quiet, respectable people, the maiden aunt kept her health and made the best of the difficulty, and things went on *tant bien que mal* for several months, when suddenly the people across the well moved away, and were followed by new tenants whose conduct, especially at night, made the centre room unfit for a lady's occupancy. Fortunately, the time set for the departure of our friend's relative had nearly come, and by keeping the window closely shut and curtained the

nuisance was endured. Not so, however, with the people above, who were really nice people with two growing daughters. After a useless protest they gave notice and left, and were soon followed by the tenants on the floor below. The house by this time had lost its freshness, the unavoidable settlement and shrinkage had taken place and left its mark on the wood and plaster work, several accidental leakages had stained the ceilings and spoilt the decorations, the showy but somewhat cheap carpeting on the landings and stairs was much worn, and, worst of all, a certain atmosphere well known to the occupants of houses of this class, began to pervade the house. New tenants were found, but they were decidedly of a lower grade. On the second floor came a large family with several men who smoked incessantly, both in their rooms and on the stairs and landings which they used as a regular part of their holding, and where they appeared with a painful disregard as to their toilet. Above, on the fourth floor, a family with many children used rugs instead of carpets and the noise proved almost unendurable. Changes became more and more frequent, and almost always for the worse, until at last our friends also moved away, blaming us for our want of judgment, and pronouncing the house a worthless, ill-planned, ill-built sham, unfit for human habitation.

And yet we hold that the fault lay, not with the landlord, who, if we consider the cost of land and building, our enormous tax rates, the constant shifting and changing of tenants which left a number of the apartments empty during a part of the year, and our laws and customs which left him almost at the mercy of such of his tenants as chose to live rent free, certainly got more worry than large returns on his investment; not with the architect, who had done his utmost to carry out the views of his client, and to plan a five-story building with a seven-room apartment on each floor on a lot intended for and adapted to accommodate one single private family; not with the builder, who had built according to long-established custom, using materials and modes of construction suitable for small private houses, but utterly unfit for buildings to be occupied in flats, but to a combination of adverse circumstances *which cannot be overcome without a radical change in the division of our land*, our mode of building, and a study of yet unsolved and most intricate social questions.

Let us now glance at the nature and working of a Parisian apartment house and see wherein it differs from the building just described. The house is situated on one of the narrow streets running south from the upper part of the Rue St. Honoré.

The distance to the Place de la Concorde (which may be regarded as the centre of Paris) is about the same as from Fourteenth street to the Astor House. The street is not a fashionable one, the sidewalks are narrow, the houses old and without the least pretence to architectural features or ornamentation, and are let in apartments. The first thing that strikes one accustomed to our noisy New York streets, is the silent and almost deserted character of the place. The house itself has a frontage of at least 100 feet and is five stories high. In the centre is an arched passage-way paved with stone, shut off from the street by a strong plain iron grille, and giving access to a court-yard, back of which are low buildings, half of which are used as a stable and the other half as a shop for a piano maker. On the right of the archway is a small door for general use, and next to it is a small ground-floor shop with living rooms back of it, occupied by the portier (janitor), who is a repairing tailor by trade and has a sign to that effect on the front window. Next to the entrance door, about the centre of the arched passage (which is as free and open to the air and storms as the open street), is a door, always open in summer and closed by a swing door in very cold weather. This admits one to a stone-paved vestibule, about 12x12, and to the stairs, which are also of rough stone. Strong, but very plain looking doors, painted a dark green, admit one to the apartments, of which there are two on each floor. The stairs and

landings are far from clean or well kept, a rough sweeping once a day and a mopping once a week being all the attention they receive, and the walls and ceilings have reached that indescribable color upon which time ceases to have any effect. In fact, the stairs and landings are regarded as a continuation of the public street, and have been used for generations by all manner of people, without apparent effect on their condition. The internal arrangements of the apartments are crude in the extreme and show an utter disregard to economy of space quite startling to us New Yorkers. Nor does an examination of a number of plans of apartment houses lately erected in Paris show much of that Yankee ingenuity which enables some of our architects to put two rooms 12x16 in a space 10x12. Two sets of plans prepared for Mr. de Navarro by well-known French architects, and which we eagerly examined with the hope of finding useful help in the planning of the Navarro buildings, proved so absurdly wasteful in the use of land that they were absolutely useless; but the elevations, though unadapted to the number of stories we had to build, were noble works of art in their way. Our apartment consisted of seven rooms, the same number as in the New York house, but rather larger, and with this immense difference that every room had at least one window on the free open air, and so managed as regards angle or distance from other windows that it might be kept wide open without fear of intrusion. In fact, one thing, which with us seems entirely overlooked, had been taken into careful account; we mean *privacy*. If we add to this that the floors were so thick and solidly filled in between the heavy beams as to exclude sound, smells and insect-life communication, and that all the walls and partitions were of brick or stone, we will realize the great difference between our so-called French flats and the genuine article on the other side. The fact is, that in our sense of the word, the French, except perhaps the very poorer classes, do not live in apartments, *but in small private dwelling houses, built on one level on the top of one another* and reached by a narrow ascending street.

As regards the thousand and one ingenious contrivances and conveniences, which with us have become almost a necessity, they are simply ignored. No patent letter boxes or door openers are necessary where the front door stands freely open except at night, and all may go in and out, with no other supervision than the eye of the old porter, who sits working at his bench close to the entrance way. No lift or back stairs for servants in a land where social conditions are so clearly defined that the fine lady may stop and exchange a pleasant word with the grocer-boy or the water-carrier without the possibility of undue familiarity. No speaking tubes, no water or steam pipes to pierce the floors and establish a communication from floor to floor. Our kitchen had not even a dresser, but a plain cupboard let into the wall. There was a sink, but no water supply, every drop we used having to be bought from a water-carrier, who brought it up in pails. No bath-rooms, that is, yes—there was a small room tiled with brick like the kitchen and called "the bath-room"—but it was devoid of water fixtures in any form, and the tenants were expected to furnish a portable bath-tub. As to the water-closet arrangements, they were certainly in this case of a most unique character. A stone tower some 10 feet inside diameter and built some 12 feet away from the house, was connected with every landing by a light covered bridgeway. Inside the tower, and on every floor, was a small privy so arranged that the matter fell directly down into a vault below, without ever touching the sides. Where or how this vault was emptied we never inquired, but, strange to say, the thing on the whole worked well and certainly did away with all plumbing bills.

Now, a word about the occupants. The ground floor on the right of the entrance was occupied by our friend, the portier, with his shop on the front and living rooms in the rear, and by the family of the piano-maker, who had his shop in part of the stables in the rear. To the right were the vestibule and stairs and large reception rooms forming part of the first floor (second floor with us) apartment, but which

had not been opened or used for many years. On the first floor lived *Monsieur*, whose apartments took in the whole floor. *Monsieur*, who was always referred to by the old portier with a mixture of awe and loving familiarity, owned the house and belonged to a very old and it seems very grand family (not titled) in Brittany. He was a splendid-looking old gentleman, plainly dressed, and without any decorations, he having refused to accept favors from any but a legitimiste government; a renunciation that the portier seemed much to admire, rather inconsistently we thought, as he himself was a rabid red-Republican. *Monsieur's* fortune was much reduced, and he now kept only one carriage and two horses. The way he stepped aside and bowed to any woman he met on the stairs, was worth the rent of an apartment, and his treatment of the toy-maker's wife, who lived on the top floor, was precisely the same as that he accorded to the ladies of the wealthy people on the second floor. On the second floor were two apartments occupied by people of some wealth who were very seldom seen or heard. On our floor, the third, lived a doctor, his door bearing a plate to that effect, and being provided with a small peep-hole opening, strongly barred with iron, to enable him to ascertain the character of a visitor if called upon at night. On the fourth floor lived a retired army officer, and a widow with a pretty daughter, and a son employed in some government office. The fifth and top floor was divided into four holdings and was rented to poor people, one of whom was a toy-maker, who manufactured a mechanical doll, a specimen of which he was allowed to exhibit in a small glass case near the main entrance door. There were several children on that top floor, but they were seldom seen or heard.

The income of the house as per notes taken at the time was as follows:

The piano-maker on the ground floor—shop and living rooms, 1,000 francs	$200 00
The first floor, Monsieur's apartments, would, if rented, have brought the enormous sum of 6,000 francs	1,200 00
The second floor, two apartments, at 1,500 francs each	600 00
The third floor, two apartments, at 1,000 francs each	400 00
The fourth floor, two apartments, at 750 francs each	300 00
The fifth floor, all told, about	200 00
	$2,900 00

The apartments were seldom empty; most of the tenants had lived there for years, and loss of rent through non-payment was unknown—in fact, people could not move away without first paying rent. To the people on the top floor *Monsieur* was very good, his orders being that in case of sickness or trouble the rent should be reduced or remitted. The portier, who was born in *Monsieur's* family, took charge of everything, renting, collections, repairs, etc. All *Monsieur* did was to receive his money, which, we were proudly told, he always put in his secretaire without ever counting it.

The running expenses were:

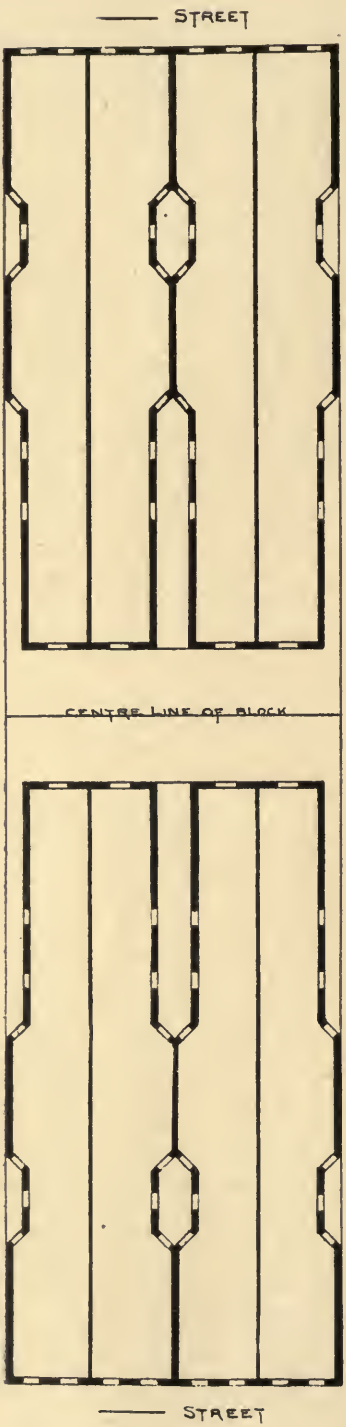
The portier's wages, 600 francs	$120 00
Sundries, for repairs, etc., which for that year amounted to only 325 francs	64 00

The tenants all attended to internal repairs.

The taxes, the amount of which we unfortunately cannot give, the pencil figures in our note-book being illegible, we remember seemed to us at the time almost absurdly small.

If we consider the comparatively low price of land and building, the durability of the structure—which is good for several hundred years—and the fact that no expense is incurred for fuel, water, carpeting or decorations, and comparatively none for service, repairs, agent's fees, etc., we will understand how the French can afford to devote a hundred feet frontage to a house whose entire rental, if fully occupied, does not exceed $2,900.00; and how people of very modest means can afford to occupy apartments which, as regards light, air and privacy, would be accessible only to our wealthier classes.

It is evident that our French flats (the name of which, by the by, is a strange misnomer) have little in common with the apartments we have just



described. Our buildings and our mode of living in them are entirely our own; and the rapidity with which we have rushed into this new mode of life amounts to a social revolution that we cannot regard without serious forebodings. Street after street of our beautiful up-town neighborhoods are being built up with solid blocks of fine five-story houses, 25 feet wide and with two and even in some cases three apartments on each floor. When the street is built up on both sides this gives us twenty families to every 25 feet of street. Think of it! Over four persons to every foot—over eighteen hundred to every block, if fully built up.

The accompanying diagram, showing air space and positions of windows, taken from a block over 200 feet long, solidly built up in the same manner, excepting one house on one street, may give some idea of what we are coming to.

Only 10 feet are kept open in the rear of each house, making 20 feet between the two; the air-slots between adjoining houses are 5 feet wide, the air-wells are six by eight. There are two apartments on each floor and therefore only one room; the front parlor has a window that is not gazed into by several other windows; the small kitchen in the rear is next best off, for its window is 20 feet distant from that facing it. All other rooms are looked directly into by other windows not over 5 feet distant, and these rooms are sleeping rooms! Can we be surprised if such buildings rapidly degenerate into ordinary tenements, and if our upper middle-classes are constantly migrating to new neighborhoods, which soon follow in the general downward course? Where is this to stop? Are we wasting millions in the building up of a city so radically defective in plan and construction, that a few decades will find it honeycombed with squalid tenement districts, ever spreading and ever tending towards lower depths of fetid degradation? We know that the spirit of our people and institutions is opposed to legislative interference, but we must remember that restrictive laws and the devoted efforts of a few gentlemen connected

with our Board of Health have alone saved us from a state of things too horrible to describe. How far the supposed rights of property-owners can and should be interfered with is a serious question, but one thing is certain: if we would not make this city unfit for moral and physical health, we must put a stop to the use of dead air-wells; we must insist on a reasonable amount of open space between buildings, and especially we must take into account a thing that our laws have not as yet considered: we mean *privacy*. Sleeping rooms, the windows of which are in such close proximity that every act and every sound may be seen or heard by strangers, are subversive of common morals and decency. Unfortunately, even a semblance of privacy cannot be obtained without sacrifices far greater than are required to secure light and ventilation.

Nothing short of a law forbidding the erection of walls, with windows or openings of any kind within 10 feet of the line of adjoining lots, would in any way meet the case. This would not prevent the building of blank walls, but where windows are set in the walls of two adjoining houses it would insure a distance of 20 feet between them. This law already exists as regards the rear of apartment houses in New York City and should be extended to side walls.

With the arrangement of our blocks making our lots only 100 feet deep, it seems very doubtful whether buildings deeper than the private houses for which they were intended are advisable. Barring the case of public and business structures where the whole surface of the land must often be covered, an open space about equal to the width of our streets should be insisted upon in the rear of buildings intended for habitation. This would, of course, make the building of apartments in flats on one level impossible on a single lot. In order to meet this difficulty, we have in several of our buildings contrived two-story apartments—that is, complete two-story houses set on the top of one another. Eight fine rooms and bath-room may thus be obtained as well-lighted and ventilated and as private as in any of our old-fashioned private houses. This arrangement offers many advantages, and the question is whether, where the enormous price of land makes it necessary to have a large number of apartments on a given space, it is not better for us to extend in height and to retain ample open courts than to cover 78 per cent of our superficial area.

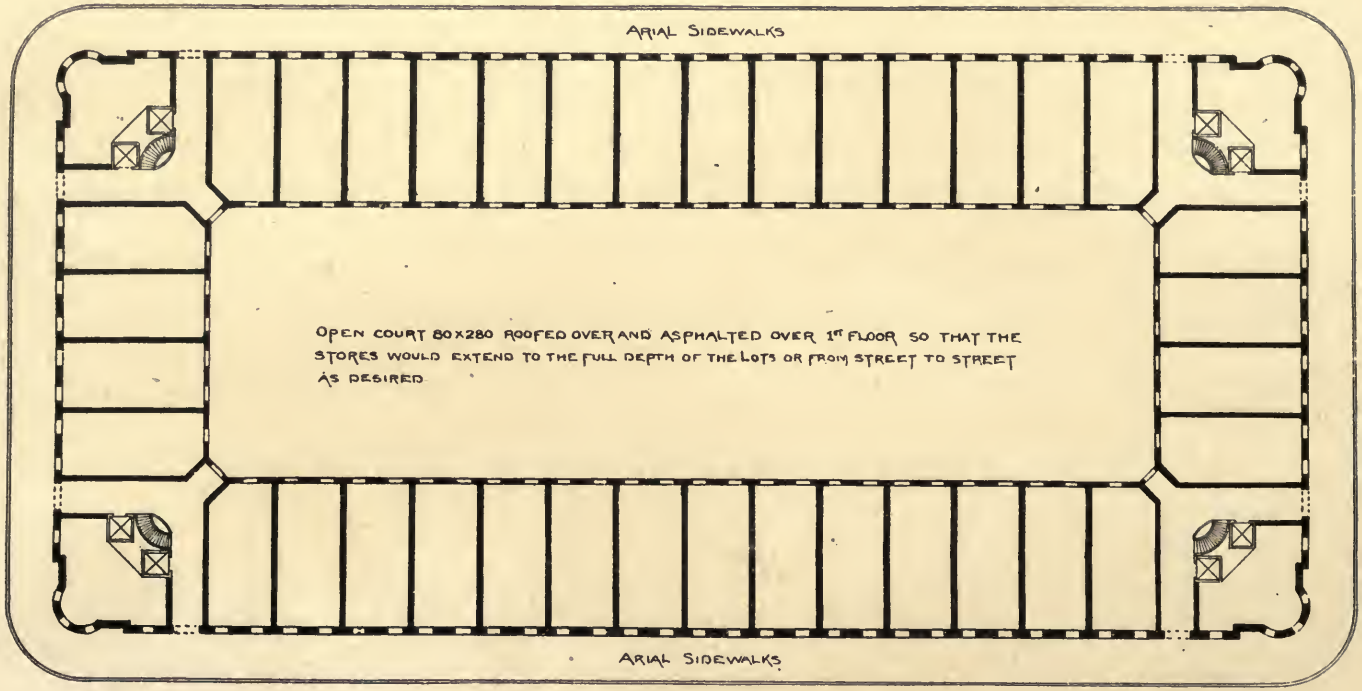
We have before us the plans of a projected building which, if erected, would, we think, have been an interesting study. They were prepared for the site now occupied by the Madison Square Garden, upon which the late W. H. Vanderbilt had given us a most liberal option for several months. Over a million of dollars had been subscribed for the enterprise, and its abandonment was due to the passage of the high-building law, which made the erection of the structure impossible.*

The idea was to erect a building thirteen stories high, covering the whole block, and consisting of six layers of small two-story houses, each 22x50 feet, and set one on the top of another, and stores on the ground floor; this gave us, besides the stores, six layers of forty houses each, or 240 houses in all. Aerial sidewalks of the usual width were set on every alternate floor, and gave access to the parlor floor of each house, and two huge elevators set at each of the four angles of the building took the people up and down.

The sidewalks were 14 feet wide, but only took up 10 feet on the lots, as we hoped to be allowed to extend 4 feet over the areas in the form of balconies. The vast court, 80 feet wide, was to be further ventilated by a number of arches pierced through alternate stories, as we did with the Navarro buildings. The ventilation obtained by means of

* This law, which, in this office alone, caused the abandonment of projected buildings involving an expenditure of over five millions of dollars, seriously checked the progress of this city and would have virtually put an end to the erection of large fire-proof buildings had not the fact that it did not apply to hotels or office buildings opened a door of escape. Why apartment houses should have been thus singled out, while hotels, which are apt to be far more crowded, are allowed to be erected without the least control as regards light and ventilation, is one of the mysteries of our strange modes of legislation.

27TH STREET



MADISON AVE

FOURTH AVE

26TH STREET

these arches is perfect—lifts set between every two houses and going down to the basement enabled tradespeople to reach every kitchen. This aerial sidewalk arrangement, by making the public access to the houses absolutely open and free, carries out to the utmost the French idea, that the public hall and stairs are a mere continuation of the public street, and that each apartment is in all its essentials a separate and individual home.

But we are going far beyond the limits of a magazine article, and have barely touched one of the many points of vital interest that affect the question. What about construction? Is it not time that we should put an end to the erection of buildings that we know will have to be taken down before the expiration of fifty years? Is a brick and iron fire-proof building so very much more expensive than a lath-and-plaster structure if we divide its cost by the number of years it may reasonably be expected to last? Are we not too exacting in our demands for modern conveniences and for ornamentation? If economy be an absolute necessity, had we not better do with less plumbing work, less steam heat, less electric bells, annunciators, regulators, etc., etc., and with less ornamentation in the way of terra cotta, stone carving, porticoes, colonnades, projecting cornices, sham turrets, sham mosaic, sham fancy glass, cheap carpets, frescoes and other embellishments, and have a little more air, light and privacy? The old French house we have tried to describe is as plain as a storage warehouse; it is devoid of almost all our cherished modern conveniences, but it has stood and will stand, if not disturbed, for centuries, and the apartments within its rugged walls are separate, individual homes—not what we term French flats.

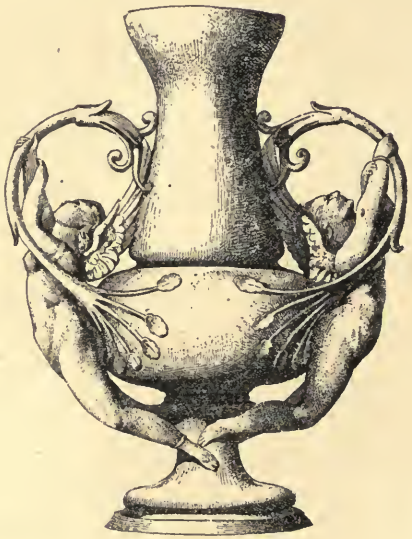
Cannot some change in our system of taxation, which now seems to fall exclusively upon real estate, be devised, and help reduce our enormous rentals? A relative of ours lately paid for the rent of a pretty house in Kensington, London, precisely the same amount as we had to pay for taxes on a house on Twelfth street, near Second avenue. Would it not be better if vacant lots were taxed more heavily and improvements less so? This would discourage the persistent holding of land for speculation, and encourage the erection of good permanent buildings. The fact that our laws and customs leave landlords virtually at the mercy of such as desire to live rent free while honest tenants are taxed to make up for the loss is one of the causes of our enormous rentals. True, tenants are usually made to pay in advance and can easily enough be ejected for non-payment of rent, and this is hard enough on poor folks who dread seeing their goods and chattels thrown out on the sidewalk. But the gentry we refer to have little to fear from such treatment; they pay the first month's rent, and possibly the second, and then stop, and the landlord, fearing empty apartments, and the wear and tear and discredit that constant changes bring upon his house, waits and waits, hoping against hope for several months, until at last the tenants march off highly indignant, and have their fine furniture (which always belongs to some other party) carefully removed in patent spring-vans to new fields of plunder. In a Parisian house not a stick of furniture, no matter by whom owned or claimed (except we believe a poor man's bedding and the tools actually used in his craft), can be removed before the rent is paid. Hence people live more according to their means, each man pays his own score and rents are lower.

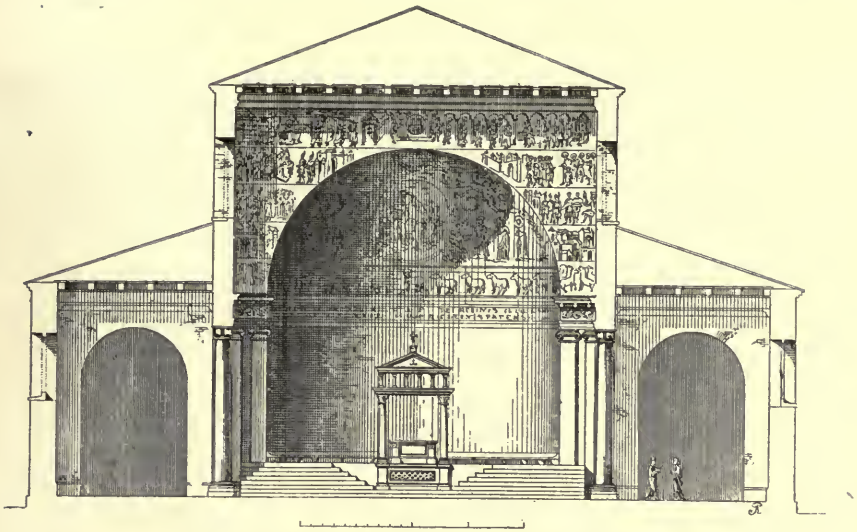
All these and a host of other questions that press upon us we must leave to the thoughtful consideration of abler men, and we do so, in full assurance that the clear-minded sagacity of our people will soon adapt our laws and customs to the requirements of a mode of life so peculiarly suited to our circumstances that its general adoption seems unavoidable.

As to the planning and construction of the required building we may safely trust the skill of architects, who, besides the advantage of their Yankee endowments, have had their wits sharpened by the planning of two seven-

roomed apartments, on lots 25x100, and have evolved the marvels of convenience, taste and ingenuity to be found in so many of the very French flats we criticise. Give them space, give them suitable materials and means, and especially give them freedom of action, and we will answer for the result.

Hubert, Pirsson & Hoddick.





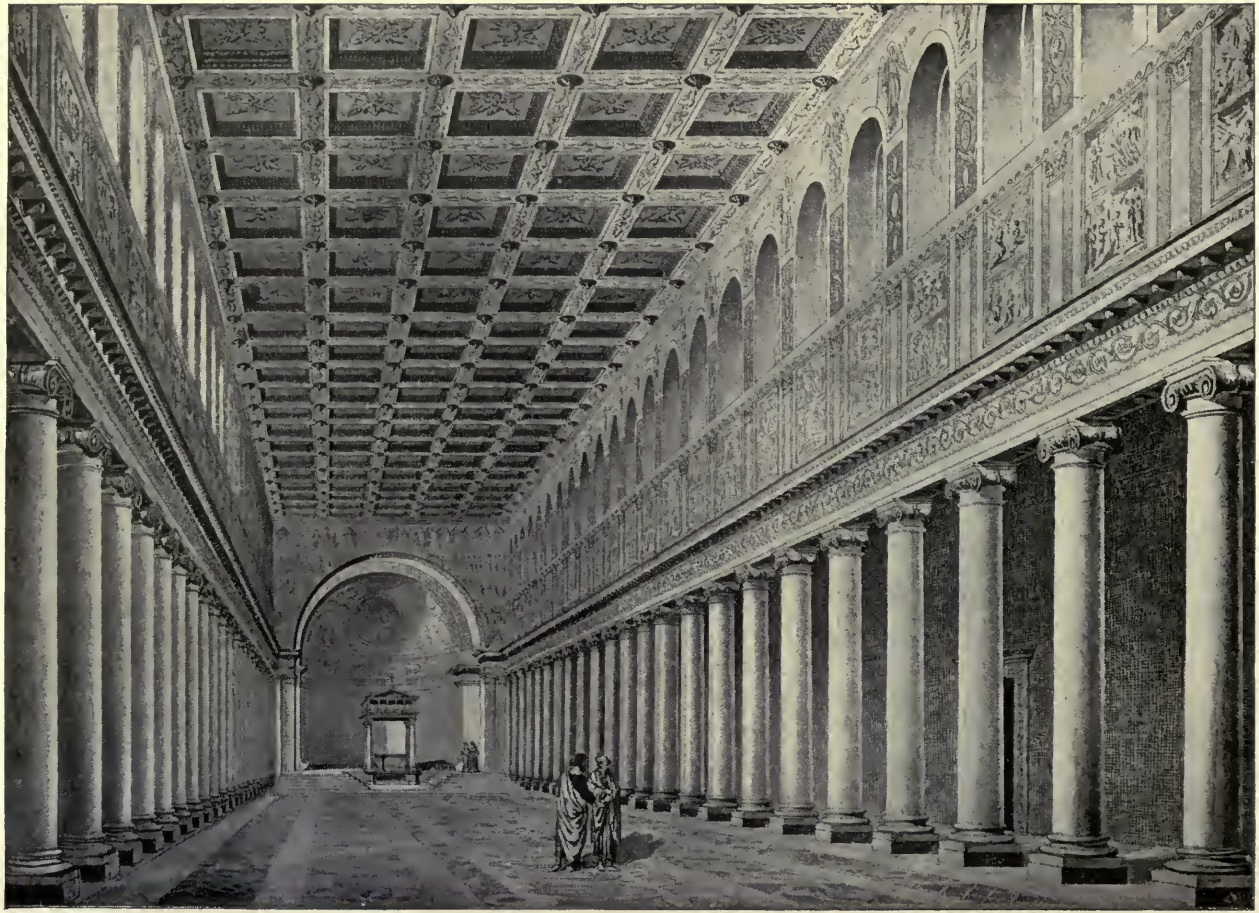
CROSS SECTION OF S. M MAGGIORE IN THE TIME OF SIXTUS III.

THE BASILICA OF SANTA MARIA MAGGIORE.



ONE August night about the year 355 or 360, so the legend of the church tells us, Liberius, Bishop of Rome, known in later history as Pope Liberius, was visited in a dream by the Virgin Mary, who ordered him to build her a church upon a spot which he should discover in the morning marked by a covering of new-fallen snow. Early the next day messengers brought the wonderful news that fresh snow, fallen in the summer night, had covered a space on the summit of the Esquiline Hill. Presently a wealthy patrician, of whom we are only told that his name was John, and that he and his wife had wished to dedicate a church to the Virgin, came to announce to Liberius a vision like his own and his desire to carry out the Virgin's command. The Pope and the patrician went together to the place of the miracle and there in the surface of the snow marked out at once the plan of the basilica, which, in memory of its miraculous origin, came afterwards to be called the Church of St. Mary of the Snows—Santa Maria ad Nives. It was built under the authority of Liberius and at the cost of John, "juxta Libiæ Macellum," hard by the meat market of Libia, as the historians say, on the site of the private basilica of one Sicininus, and so was called at first only the Basilica Sicinina. After the death of Liberius it was called the Basilica Liberiana, which is still its official title, for the story of the miracle and the name which is derived from it were not in common circulation till some centuries later. The church so founded, the earliest important church there dedicated to the Virgin, has been conspicuous in the history of Rome; it passed through many transformations and a variety of names before it became universally known as the Church of Santa Maria Maggiore. No church in Rome, after the Lateran and St. Peter's, has held so large a share of public veneration, has been more honored by the Catholic Church herself, or so splendidly adorned and maintained to this day; perhaps none at all retains so much of the aspect of the great basilicas which saw the early triumph of the Roman Church.

It is true that it is not easy to say how much of the church of Liberius is to be seen in Sta. Maria Maggiore to-day, and we can more safely say that

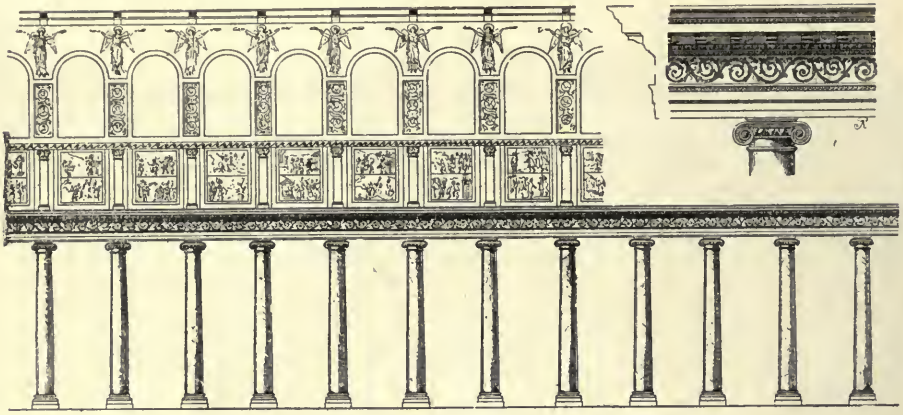


From Dehio & von Bezold.

S. M. MAGGIORE, AS RESTORED BY SIXTUS III.



S. M. MAGGIORE.—INTERIOR OF THE PRESENT CHURCH.



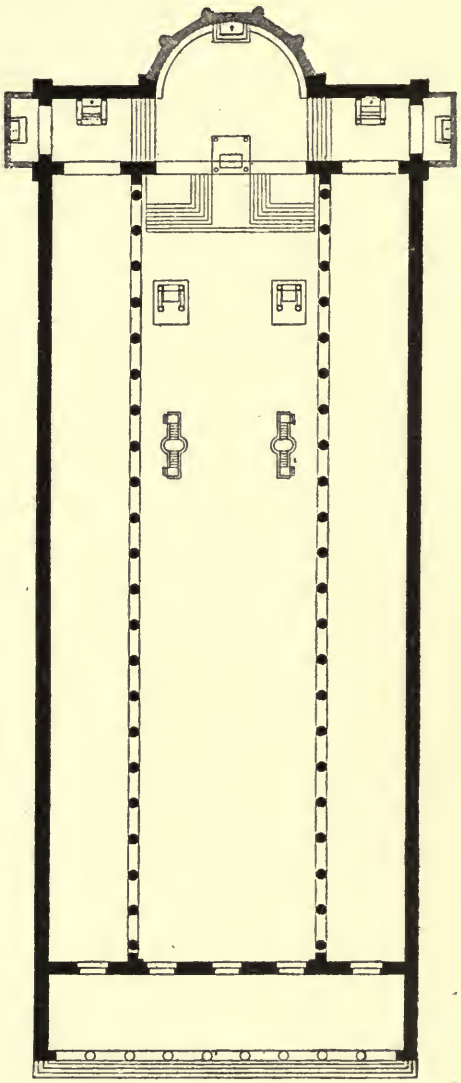
LONGITUDINAL SECTION OF S. M. MAGGIORE IN TIME OF SIXTUS III.

it still shows within, in its chief parts, the form which it had after its restoration by Sixtus III. eighty years later. We do not know how much he altered its main structure, perhaps not greatly, but we may believe that it was in need of restoration when we consider what went on in Rome during the fourth and fifth centuries. No sooner, for instance, had Liberius died in 366 than it suffered in one of those bitter schisms which surprise the reverent inquirer into the early history of the church.

The Athanasian controversy which had troubled the pontificate of Liberius was renewed in the struggle of Damasus and Ursinus for his vacant episcopal chair. This led to a factional fight so furious that the Prefect of the City was driven to take refuge outside of the walls; and when the election of Damasus was verified his party attacked the followers of Ursinus, who were met for protest and defiance in the church of Liberius. They set fire to the doors of the church, climbed upon the roof, which they tore open, and hurled its tiles down upon the people within. At the end of the fight 137 of Ursinus's party lay dead upon the floor of the church. In the time of Sixtus III. it was the Nestorian controversy that divided the church; and when that heresy was set at rest by the counsel of Ephesus, which declared the Virgin to be the mother of God — Θεοτόκος, Deipara — Sixtus, identifying himself with the prevailing doctrine, determined to signalize it by restoring the basilica, and dedicated it to St. Maria Dei Genetrix, the first, as I have said, and the greatest of the churches dedicated to her in Rome. Among the four early basilicas this one is singular, the only one which has single aisles, the aisles being double in St. Peter's, St. Paul's and the Lateran Church. In this, no doubt, Sixtus preserved the early form of the church, and also in the round apse which closes the end of the nave, and in which the windows were cut some centuries later. Whether he found or added the small transept, which subsequent alterations have as it were obliterated by walling off the arms from the choir, it is not easy or very important to decide definitely. We may remember, however, that all the great Roman basilicas of the fourth and fifth centuries had transepts, unless it be S. Lorenzo *fuori le mure*, which was also rebuilt by Sixtus, and whose original form is very much disguised by the changes it has gone through. We may note also that in the early churches of Rome there was no intersection of nave and transept; but that the transept was a cross-wing against which the nave and aisles stopped as abruptly as against a dead wall; though the wall was in fact pierced with great arched openings. This formed not a cross but a T, the transept being broken only by an apse set opposite the triumphal arch that opened into the nave, and occasionally by other apses opposite

the aisles. The cruciform church of the Middle Ages, as we know it, where the nave and transepts interpenetrate and cross, forming four arms joined in a central square, was developed pretty early in Lombard architecture, and in a sort in Byzantine, but the conservative Romans did not soon accept it. After the helpless syncope of art in Rome in the tenth and eleventh centuries, they imported it from without, with the other forms of mediæval art, in the revival of the twelfth and thirteenth. The earlier or Roman form has, nevertheless, been known in ecclesiology as the *crux commissa*, meaning the T-shape, in distinction from the *crux immissa*, or genuine four-armed cross.

The accompanying figure shows the plan of S. M. Maggiore as it was at least after Sixtus III.; but we may fairly suspect, from the analogy of the other important churches of the first centuries of Christendom, that it had before it from the beginning an atrium or open court surrounded by colonnades, with the usual fountain or basin for ablutions in the middle. The dimensions of the basilica were large. The nave, 230 feet long by 55 in clear width, is as ample as the largest in the great mediæval cathedrals, though not so lofty, being only some sixty feet high. Whoever enters it to-day sees it essentially as Sixtus saw it. Its multitudinous marble columns, said to have been taken from the temple of Juno Lucina, carry, not the arches that we commonly look for, but a straight entablature whose lines, broken only once on each side by a modern arch, lead the eye away down to the great triumphal arch and round its imposts. The Ionic order is of classic proportion and detail, the entablature rather light and the frieze decorated with arabesques in mosaic. Here for once we have an interior of classic type which, loftiness apart, more than competes with the great Gothic interiors in effect of multiplicity and far-reaching perspective. The columns, much closer spaced than arcades would allow, seem countless; the long lines in the entablature, cornice and coffered ceiling, and in the Alexandrine pavement, the very lowness of the nave, all help to give a marvelous impression of scale, distance and majesty. The only dissonance in this harmony is the interruption of the entablature by the modern arches. But for that we should have here the



GROUND PLAN OF S. M. MAGGIORE.

one unexampled instance of a church interior purely classic in design, simple, continuous, thoroughly harmonious and, in spite of its monotony, unique in its impressiveness.

The deliberate retaining of the entablature in certain of the most import-

ant buildings of christianized Rome at the time when the arch was elbowing it out of use throughout the rest of the world is a singular sign of the conservatism of Rome. Even in the Eastern Empire, of which we are apt to think as the embodiment of conservatism, we find almost no traces of the use of the entablature after the time of Diocletian. But in those days the East was the progressive branch of the Empire and Rome the backward. While the Empire of the East, founded by barbarians, developed its polity, its society and its arts with the freshness of a new state, in the northern parts of Italy the German conquerors, settling themselves among the Italians, gradually renewed the population and transformed its habits. They infused their own energy, first under the Gothic monarchy and then under the Lombard, rapidly reforming the arts which their inroads had nearly destroyed. But Rome sat apart, uninfluenced by the new life that was stirring about her, her population unrenewed and gradually wasting under oppression, violence, pestilence and famine. Only her hierarchy gained in authority and wealth, while everything else decayed about it. Again and again the floods of invasion threatened to overwhelm her; now and then they surged up to her gates and fell back. Four times her enemies burst in and pillaged her, stripping her of an incredible amount of accumulated wealth ; yet they did not fasten upon her, but hastened away with their booty. The awe or reverence with which for ages she had inspired the outside world had twice turned back Alaric before he finally abased her; and, aided by the eloquence and venerable bearing of Leo the Great, had even held the arrogant and savage Attila at a distance. It would seem that something of this reverence returned upon her conquerors after the first impulse of their violence was spent, made them uneasy within their walls and drove them to leave her to herself in her humiliation. So she lived in virtual isolation through the dark ages, as Mecca or as Jerusalem lives now. Pilgrims flocked to her, left their offerings and went away. Her pontiffs gradually extended their spiritual authority throughout Christendom, rooted their temporal authority, and gathered wealth from all the world into her shrines. But little new blood came into her population : numbers, character, learning and art declined among them, and like all decadent communities they held to their conservatism. Constantine had found a great body of Christians in Rome, mostly, it is true, among the lower classes ; and though his imperial promulgation of their religion made a great change in external observance, it was long before even the ancient worship was smothered in the city, longer before the upper classes ceased to be secretly devoted to their paganism, longer still before the Roman people radically changed their ways of thinking and feeling. For centuries their old superstitions clung to them ; their attachments to their old institutions, manners, arts, were perennial.

It is clear that the older and consecrated form of architecture was preferred by the early Roman Christians to the new ; the entablature was more in honor than the arch. It is likely that when they first lined their naves with arcades instead of colonnades economy and ease of construction were their determining motives. Their mechanical skill had already deteriorated and it was easier to turn plain arches than to cut entablatures. When they had an excuse to plunder a heathen building they could supply themselves not only with columns, but with the rest of the order, and repeated edicts of the later emperors, and even of the Gothic Thedoric, for the rescue of the old buildings from destruction show that the reverence of the people for the ancient monuments did not keep pace with their attachments to the ancient forms. It would appear, too, that Constantine and his bishops set the example of destroying the old for the building of the new, for there are few early churches in which the conspicuous parts are not built out of old materials. But the opportunities for the despoiling of old buildings were not unlimited, and while columns could be stolen from distant

towns it was not so easy to bring whole orders. Columns were indispensable, but architraves and cornices were not. So while it is apparent that the greater honor attached in Rome—and in Rome only—to the ancient form, we find the use divided between that and the arch. In the old basilica of St. Peter's, pulled down at the beginning of the sixteenth century by Bramante to make way for the modern church, and in the round church of S. Stefano, the nave was lined with great colonnades bearing entablatures, while the double aisles were separated by smaller columns with arcades. The contemporary basilicas of St. John Lateran and St. Paul's outside the walls were arcaded throughout; our Sicinian or Liberian basilica showed the entablature; so did somewhat later the churches of S. Lorenzo without the walls, St. Maria in Trastevere, S. Crisogono, S. Martino ai Monti and Sta. Prassede, while in the lesser churches the arcade was usual. That the entablature was used with effort is shown by the fact that usually the architrave is relieved by bearing arches hidden, or meant to be hidden, in the frieze, or as in Sta. Prassede, above the whole entablature.

Above the order the walls of the nave have lost something of their old and probably plainer aspect, each alternate clerestory window being filled up and replaced by a modern painting, while an order of Corinthian pilasters set between them repeats and continues the lines of the columns below. But the square paneled ceiling, with deep coffers and carved and gilded beams, although added at the beginning of the sixteenth century, doubtless renews very much the effect of the original one, while the upper order with its cornice and frieze is at least harmonious with the effect of the lower part.

The most characteristic adornment is still the series of mosaic pictures in square panels not much spoiled by later restorations with which Sixtus filled the space between the lower order and the clerestory, leading up to the great group of mosaics that surrounds the triumphal arch. These show how early a consistent scheme of iconography was arranged for the decoration of the church. The mosaics on the walls of the nave represent in the main a series of scenes from Old Testament history, the prophecies and forerunners of Christ. Those about the arch show the story of his birth and infancy—the Annunciation, the Presentation, the Adoration of the Magi, the Massacre of the Innocents. They are among the most interesting in Rome, as they are among the earliest. Late classic in style, showing the rather stumpy figures of the reliefs of Trajan's column, they yet have a freedom of drawing and invention and a skill in execution which were lacking in the mosaics of the following centuries. Over the arch is the simple inscription "Sixtus Episcopus Plebi Dei." The ambones which stood on each side of the nave near the choir, and the two ciboria that flanked the entrance to the choir are gone; the baldacchino that stands in front of the arch of triumph is modern; a modern tomb on each side of the entrance closes the first intercolumniations of the nave, yet the interior is singularly harmonious. The warm tones of the marble columns, tinged by age and by the smoke of innumerable censers, the marble pavement, the rich coloring of the mosaics and paintings, with the quiet tints of the architectural members, enriched here and there with gilding, the whole roofed by the gilded beams and gray panels of the ceiling, add a sober splendor to the dignity of the architecture.

The gifts which Sixtus III. added to his church illustrate one of the singular phenomena of Roman history—how, even after the pillage of the Goths, and while the decline and depletion of the city were steadily going on, the church kept on accumulating wealth, repairing her losses. Her population was wasted with want, and sometimes at starvation's door, but her shrines were adorned with a luxury which sounds fabulous to us. We are told that Sixtus furnished the altar of Sta. Maria with a *scypus* or chalice of gold which weighed fifty pounds, and overlaid it with 300 pounds of silver plates; silver stags spouted water into the font, or the basin for ablutions. At the

same time the Emperor Valentinian gave to St. Peter's a golden relief representing Christ and the twelve apostles, and to St. John Lateran a silver tabernacle. Perhaps it is not strange that one barbarian sacking of Rome was followed by another, that if the Arian Goths had respected the orthodox shrines, the Vandals should have spared none, but loaded themselves alike with the gilded tiles of the temple of Jupiter, the spoils from the temple of Jerusalem, and the furniture of the Christian shrines, or that St. Jerome should declaim against the luxuriousnes of the churches and their services in his day.

It is only in the nave that the original character of the basilica is preserved. The tunnel-vaulted aisles, faced with Ionic pilasters, and the groups of chapels that lined them, are Renaissance; the main apse or tribune, with its pointed windows in mosaic, speaks chiefly of the short period when the Gothic fashion prevailed at Rome. But it is seven hundred years after the time of Sixtus III. that we next find a definite account of important changes in the church, though meanwhile, perhaps in the seventh century, the bell-tower was built on the right of the main entrance, where, added to in the thirteenth century and again in the time of the Renaissance, it now lifts its four variously arcaded upper stories and its pointed roof over the main façade—the highest tower in Rome.

Eugene III. found time during his troubled pontificate, from 1145 to 1153, in spite of his struggles with his republican rebels, to restore St. Maria Maggiore and considerably modify it. He built a new front with an open portico resting on eight coupled columns of granite. Antiquaries have insisted that the Romans, with that fondness for past ways which I have just discussed, reverted again during the later Romanesque period to the classic entablature. It is certain at least that the porches added to churches—S. Giorgio in Velabro and S. Lorenzo *fuori le mure* and some others—are built with an entablature in classic form instead of the arcades which were elsewhere universal during that period. It is probable that none of these porches is older than the twelfth century. It is also true that but for some bell towers of Lombard aspect and some one or two old arcaded cloisters, all of which may belong to the seventh, eighth and ninth centuries. and the later apse of one church, there would hardly be any evidence that the Lombard Romanesque, which took possession of the north of Italy, ever found its way into Rome. An old print cited by Letarouilly shows that the portico of Eugene, like the porches I have just mentioned, had an entablature and not an arcade. A more extraordinary thing, which does show the influence of the contemporary style upon the revival or continuation of the old one, is the coupling of the columns in a colonnade, a thing unknown in ancient art, hardly to be found in the Renaissance, and looked upon as an innovation when it was introduced by Perrault in 1665 in his famous colonnade of the Louvre.

In truth, during the period of most rapid development of Romanesque architecture, the eleventh century and most of the twelfth, Rome, impoverished, unpeopled, and entirely given up to the evolution of her church, did almost no building of which we have record. If we may believe the writers of a somewhat later time, she had sunk to the lowest impotence in literature and art. It is likely that being provided with churches to suit the larger population of earlier days she had no occasion to build them, and there is abundant evidence that many of those she had were allowed to fall to dilapidation, and were from time to time rudely and hastily restored only to keep them from tumbling to pieces; or the favorite church of some dignitary was enriched by a small addition, or adorned with mosaics or a new shrine. But this was all. Such conditions favored, not progress, but conservatism and even retrogression. The porticos which I have mentioned and which are the characteristic monuments, perhaps the only ones, of Roman architecture at this period, are altogether classic in general form, and might easily have been believed by their builders irreproachably so in all respects. Yet they show on examination that they could not have been executed at a date much

earlier than that which their history assigns them. The ratio of the columns to their load, the proportions and in some degree the form of the details, betray the influence, very likely then unrecognized, of the work that went on outside of Rome. They give evidence of a sort of revival in the twelfth century, whose rude beginning shows into what decadence the Roman architecture had fallen, but which advanced both in design and in mechanical skill, leading up to the finished work of the Cosmati, and culminating in the cloisters of S. John Lateran and of St. Paul's, or outside of Rome in the porch of the cathedral at Civita Castellana.

At the end of the next century, about 1290, Nicholas IV. rebuilt, or at least redecorated, the apse of St. Maria Maggiore. By this time the Gothic wave had overflowed Italy, and even Rome yielded so far as to admit the pointed arch. Pointed windows were cut in the apse, which are still to be recognized on the inside, and it was covered or re-covered with mosaics. These had been a specialty of Rome ever since they were invented, and pictorial mosaic had been specially fostered by the church. It had sunk with the other arts in the ninth and tenth centuries and risen with them in the twelfth. Nicholas marked his short reign by the mosaics with which he lined the apse of the Lateran and Liberian basilicas, the finest works of their day. Both were the signed work of one artist, Jacobus Torriti, a Franciscan monk, of whom only these works are known, but who is not to be confounded with the painter of the same name to whom are due the earlier mosaics of the Baptistery at Florence. We may guess him to have been his kinsman. The central composition here represents, in due sequence with the older mosaics of the nave and the triumphal arch, the crowning conception of the cult of the Virgin—the Incoronata. Colossal figures of Christ and the Virgin occupy a great disc on the back of the dome. They are seated together on a throne, his hand still raised to the crown which he has just set upon her head, and are divided by a border of stars from the rest of the composition. About them crowd ranks of angels, behind whom modestly kneel on either side Nicholas and Cardinal Colonna, who shared the cost of the decoration with him, overtopped by the towering figures of the patron saints of Rome, and of the two Johns, the baptist and the Evangelist, and behind these again the newly-canonized saints, Francis Assisi and Anthony of Padua. Beneath is the inscription, more or less abbreviated:

Maria Virgo Assumpta est ad etherium thalamum in quo Rex Regum Stellato sedit solio; and below this:

Exaltata est sancta Dei Genetrix super choros angelorum ad coelestia regna.

The mosaic is remarkable for various reasons. It marks, as I have said, the culmination of homage to the Virgin, and is perhaps the earliest representation of this conception that exists. It is interesting to compare it with the corresponding mosaic, a century and a-half older, in the dome of the apse of the other great early basilica dedicated to the Virgin—S. Maria in Trastevere. There again Christ and his mother are enthroned side by side; but the son sits with his arm about her shoulder, and with no emphasis of the crown, as if the enthronement were the event portrayed, and the crown simply a part of the costume supplied by the painter. The mosaic of Sta. Maria Maggiore shows the advance in design and execution due to the interval. From these figures the classic attitudes have entirely disappeared, though something of classic breadth still lingers in the draperies, but the upper part of the conch or dome is occupied by arabesques on a large scale singularly classic in design. It is easy to conjecture that the enormous acanthus leaves from which they spring, and the dense reversing coils of heavy foliage, in which figures of birds are enveloped, are parts of the older decoration of the apse preserved from the fourth or fifth century, while the borders of the dome and of the pointed windows, though still composed of classic motives, are distinctly mediæval in scale and treatment.

Of like character with the mosaics of the apse, and almost the same date, are

those added at the end of the thirteenth century to the old front above the portico and fortunately preserved when the front was remodeled and the present loggia built over them. They represent in a broad upper band great figures of Christ enthroned with the Virgin and Saints on each side, and below these four characteristic scenes, framed in Italian Gothic architecture of the thirteenth century, telling with great animation the story of the foundation of the church—the vision of Liberius and that of John the patrician, the reception of John by the Pope, and their identification of the site, under an abundant but circumscribed snow-storm sent down by Christ and the Virgin inclosed in an aureole above. The upper band of mosaics is signed by Philippo Rusuti, of whom again only this work is known; the lower ones are attributed by Vasari to Gaddo Gaddi, who also, it is said, added a range of small mosaics below those of the conch of the apse. These are all contributions by Cardinals Jacopo and Pietro Colonna, of a family which cherished this church and much adorned it in later days.

These are the last considerable changes in the church itself of which we have record until the days of the Renaissance. Within a dozen years—in 1309—began the Babylonian exile, as it has been called, of the popes to Avignon under Clement V. Seventy years later, when Gregory XI. brought back the papacy to Rome, he rebuilt or built up the bell-tower of which I have spoken, and the upper stories which he added, with round arched arcades above pointed ones, may count as a symbol of the brevity and instability of Gothic influence upon the architecture of Rome. The great churches of Rome seem to have fallen into neglect and dilapidation during the exile, and to have but slowly recovered. It is a curious coincidence that the three popes who since the establishment of the church by Constantine have at long intervals borne the name of Sixtus are all associated with this basilica. The next we hear of it is that a hundred years after Gregory XI., the magnificent Sixtus IV. of unsavory history, builder of the Ponte San Sisto and the famous Sistine Chapel of the Vatican, adorned the church with splendid furnishings, of which perhaps the only remains are the four columns of porphyry that to-day support the modern baldacchino over the high altar. He added, through his French Cardinal D'Estouteville, arch-priest of the church, a chapel which was probably among several that have been swept away to make room for later and more splendid additions.

At the end of the fifteenth century, while Columbus was discovering America, Alexander VI.—the second and last Pope of the Borgia family and father of that precious pair, Cæsar and Lucrezia—made Giuliano San Gallo replace the ceiling of the nave with that which we have described. History is full of unexpected juxtapositions, and one of these surprises us when we are told that the first gold brought from the New World, given to the church by Ferdinand and Isabella, is spread over the gilt beams of this ceiling. Sixty years later Michelangelo began, for Cardinal Guido Ascanio Sforza, the chapel on the right of the nave, still known as the Sforza chapel. He and the Cardinal died in the same year, 1564, and the chapel was carried out for Cardinal Alexander, brother of the first, by Giacomo della Porta. The design of the chapel was modified, it is said, in the after execution, but the singular and extravagant plan is probably due to Michelangelo, whose unruly genius tended, in architecture, to the far-fetched and the bizarre. It had an enriched façade toward the nave, but this was taken down, probably with advantage to the nave, in the later restoration under Benedict XIV.

Of the other chapels that line the aisles two are of special importance—the *Capella del Presepe* and the Borghese Chapel, the chapels of Sixtus V. and Paul V. These twin chapels stand on opposite sides of the nave, and though to the vast basilica they are but side chapels, they are on a scale that would do for churches in these degenerate days of scattered worship. They are Greek crosses in plan, measuring some 75 feet each way in size, the centres

covered with domes of about 40 feet span. They are about 65 feet high to the crown of the vaults which cover the arms, 130 to the top of the domes inside, and 160 to the summit of the lanterns without. Though built twenty-five years apart, and by different architects, they are alike in design, with some differences of detail. A great order of Corinthian pilasters, half as high again as the main order of the nave, surrounds each of them within, carrying the vaults that cover the arms of the cross, and the pendentives which bear the domes. The two drums, octagonal on the outside, are pierced with pedimented windows in the intervals of an upper order of pilasters upon which the domes rest. It was to give importance to the approach to these chapels that the colonnades each side the nave were broken, the entablatures interrupted, and two columns on each side spread apart and set close against their neighbors* so as to open two broad arches rising to the level of the clerestory window-sills. This is, as I have said, the only serious injury done to the original design of the nave; and it is serious, for it is to the grand lines of the entablatures, continued even round the imposts of the triumphal arch, and to its serried ranks of columns, that the nave owes its majesty. These are broken with an abruptness that shocks the eye, and by arches which yet look insignificant beside the triumphal arch.

The two chapels are finished inside with an amazing sumptuousness of varied marbles, sculpture, gilding and painting; their design and proportion are elegant. The earlier one, the Sixtine, was begun by Domenico Fontana for Sixtus V., when he was Cardinal Montalto, and wished a shrine of great splendor to receive the manger of Christ. This had been brought from Palestine with the remains of S. Jerome by Theodore I., when he came from Jerusalem to St. Peter's chair, and had been preserved in one of the older chapels. The lavishness of this undertaking cost the Cardinal his allowance from the papal revenues; for the Pope, Gregory XIII., declared that a Cardinal who could venture on such an undertaking must be rich already. The work would have been stopped, says Milizia, if the architect had not devoted his own savings to keep it going. Fontana had his reward when the Cardinal became Pope Sixtus, being appointed with Della Porta to carry on Michelangelo's design for St. Peter's, and he speedily finished the chapel in Sta. Maria Maggiore, with even more splendor than he at first intended.

The five boards of which the manger consisted are deposited below the pavement in the middle of the chapel of Sixtus, under a magnificent shrine. The little chapel in which they had been preserved was some twenty yards away from their present position, and Sixtus, as solicitous for the traditions of the church as he was imperious, insisted that the old chapel should be moved bodily with the precious relic in it to its new place. His faith in Fontana's engineering ability had been fixed by the skilful placing of the obelisk in front of St. Peter's; and the little building, with its walls and vaults laboriously braced, crated in a great frame of timber, and slung by a complicated system of ropes, was moved to its position and lowered to its new level. Above it is set a resplendent tabernacle of gilded bronze, and facing it on each side are the sumptuous monuments of Sixtus himself and of his sainted predecessor Pius V.

The second of the two chapels was built twenty-five years later for Paul V. by Flaminio Ponzio. It is even more splendid than the chapel of Sixtus which it copies, and more refined in its architectural detail. It, too, has its venerated relic, enshrined under a magnificent canopy over its altar—the sacred picture of the Virgin painted by St. Luke, the same which was carried in the solemn penitential procession to St. Peter's by Gregory the Great when pestilence was desolating Rome. When Paul had finished his chapel the picture was again carried in procession and was fixed here in its frame of amethyst, guarded by gilded angels under a canopy of lapis-lazuli and jasper.

* Literally, richer columns of gray granite have been substituted for the pairs that were thus displaced.



S. M. MAGGIORE.—FAÇADE OF FERDINANDO FUGA.

Closely as the two chapels agree in their design, there is one difference which has, I think, a special significance. The dome of Ponzio's chapel is the ordinary hemispherical dome of the Renaissance; Fontana's is lifted into an ellipsoid. Now Michelangelo's dome designed for St. Peter's was a hemisphere, and we know that Della Porta and Fontana got permission from Sixtus, who insisted that in every other respect Michelangelo's design should be carried out to the letter, to change the outline of the dome and make it higher. The dome of Fontana's chapel is a pigmy compared with that of St. Peter's; its outline is not so fine, but it is an embodiment of the same idea, an idea which no one but Fontana seems to have had. St. Peter's dome was built in 1588–90, just after this chapel; and it would seem that here was embodied the first conception of that soaring outline which, more than its size, makes the distinction of that dome above all other domes of the Renaissance.

Our history of the old church of Sta. Maria Maggiore may end here. The changes which since this have taken place in the interior, where alone the old church can be seen, are of little moment. The important changes are in the exterior, or rather in the architectural case that has been built about the exterior. At the time that he built his chapel Fontana had, by order of Sixtus, set up in the open place behind the apse of the church an obelisk which had long lain neglected near the Mausoleum of Augustus. The task was in some ways more difficult than the handling of the obelisk before St. Peter's, for this one was broken in pieces and had to be cunningly mended before it could be slung. At the same time he opened the long street that under the triple name of the Via Sistina, Via Felice and Via dei Quattro Fontane connects the basilica with the Trinità dei Monti and the Spanish Steps. In like manner Paul V., the year after he had finished his chapel, set up before the front of the basilica the great Corinthian column, 60 feet high between its lofty pedestal and its block of entablature, the last plunder of the basilica of Maxentius or Constantine, and crowned it with the bronze statue of the Virgin which we still see there. But Fontana and Ponzio would hardly recognize the venerable basilica which they left to be guarded by these two sentinels in the massive building which now stands there, with two modern façades facing the long streets that lead away from it a mile in each direction. The old basilica is buried in a pile of buildings occupied by the canons and other officials that serve it, and from most points of view has much more the aspect of an enormous palace than of a church. The rear front, facing down the slope of the Esquiline Hill toward the Trinità dei Monti, was built for Clement X. (1670–76) by Carlo Rainaldi, and follows more or less the lines of a design left for it by Ponzio. It is by far the finest part of the exterior; standing well at the summit of the slope, with its simple masses and long lines, and approached by an imposing flight of steps, it is dignified and harmonious. The rear of the basilica forms the central mass, and the apse projects from the middle, showing in the intercolumniations the windows of Nicholas transformed by round arches. One great order of Corinthian pilasters covers more than half the height of the whole front; the second stage is too high in the middle for a windowless attic, but in the wings suits the windows of the second-story apartments. The twin domes of the Sixtine and Pauline chapels rising above the wings make an effective, though divided composition. The warm-toned travertine of which the whole outside is built, adds a charm to the architecture, and from a sufficient distance the mediæval bell-tower helps to unite the otherwise disunited domes.

The main entrance-front, built for Benedict XIV. in the middle of the eighteenth century by Ferdinando Fuga, is much inferior. It is in fact a many-windowed palace with a commonplace and unrelated Italian church front protruding from the middle. The cornice is at a uniform level, but the palace is in five stories and the church

in two. There is some elegance of proportion in the two orders, Ionic and Corinthian, that cover these two stories, colonnaded below, arcaded above; but the flimsy detail, the multiplied breaks in the entablatures and pediments, and the uneasy statues that crown the balustrade are in poor contrast to the dignity of the other façade, and the centre swears, as the French critics would say, at the wings. The venerable bell-tower lifts itself with a fine alertness above the cornice, but stands *dépaysé* among its surroundings. We owe thanks to Fuga, that while he displaced the portico of Eugene III. and used its columns for his own porch he preserved the old front above it. The open loggia which he provided in the second story for the papal benediction at once protects and displays the historic mosaics of Rusuti which I have described.

Benedict did much to restore and adorn the interior. He renewed the pavement, inserted the responding pilasters of marble which bring the aisles into harmony with the nave, refreshed the paintings and mosaic, and added the *baldacchino*, with columns of porphyry and canopy of gilt bronze, which stands over the high altar. As he left the church we see it still. The only change in recent days has been the rebuilding of the *confessio* beneath the high altar by Vespignani for Pius IX., who intended this for his own burial-place, but whose body lies elsewhere.

"*L'art a de la peine à se soustraire au paganisme*," says Letarouilly, in Rome at least, where Letarouilly wrote it, this is true. St. Maria Maggiore is an epitome of the architectural history of Christian Rome, and may serve to illustrate how little there is or ever was in Rome of architecture distinctively Christian, or of any architecture not essentially classic. The earliest parts of the church that remain, whether they are from the time of Liberius or of Sixtus III., are as classic as the Arch of Constantine. The arch emancipated from the entablature, which is the only unclassic feature that ever naturalized itself in Rome, has found no place here. The Lombard style, scarcely known in this city, as we have seen, except by its *campanili*, is represented in due proportion by the half-concealed bell-tower. The great Gothic movement, which changed the face of northern Europe, but has hardly left any mark in Rome, is here but just betrayed by the windows of the apse and tower. The art that lifted its head in Rome after the collapse of the ninth and tenth centuries turned instinctively to classic forms, as we have seen in the vanished porch of Eugene III. The Renaissance, born in Florence, found in Rome its readiest welcome and natural home. It developed here its most classic aspect, its greatest sumptuousness. The decorative arts through all these many centuries hardly strayed away, it would appear, from classic types. Even in the churchly rites of Rome and her popular beliefs, in the superstitions of her people, in the very days of her festivals, her cult of saints, the forms of her religious observances, the classical substratum shows through at every turn. To all these things the Liberian basilica, in its architectural forms, in its pictured decorations, and in its magnificence, is a witness.

W. P. P. Longfellow.



Glass mosaic, designed by Walter Crane. (See page 88.)

MODERN MOSAIC IN ENGLAND.

DR. ANTONIO SALVIATI with whose name the revival of mosaic in England is usually associated has received an undue share of the credit which is only partly his. In the year 1850 or thereabouts there was in Venice a certain Signor Radi, skilled in all the learning of the Venetian glass-workers. Dr. Salviati, an advocate practicing there, had the wit to see that the revival of the art of glass mosaic might be made a more profitable thing than the pursuit of the law, and he proceeded accordingly to advocate such a revival.

It was no difficult matter to win over to his way of thinking an amateur so keenly interested in art and archaeology as Sir Henry Layard, who not only advised and encouraged him in his efforts, but introduced him to the arch-restorer Mr. (afterwards Sir) Gilbert Scott, just at the time, as it happened, when he was about to undertake the conversion of Wolsey's Chapel at Windsor into the "Albert Memorial Chapel" in honor of the then lately deceased Prince Consort. This was Dr. Salviati's opportunity, and he was the man to seize it and not let go. The decoration of the roof and of the west end of the chapel was entrusted to him. He also executed for Sir Gilbert Scott a mosaic picture of the Last Supper, for the altar of Westminster Abbey, and enriched with glass mosaic the spandrils of that other "folly" of her Majesty's, the Albert Memorial in Hyde Park.

Eventually what was practically an English company, backed by English capital, and administered by English directors (Sir A. H. Layard, Mr. Bates and the late Sir W. Drake among their number) was formed for the purpose of



Elijah Denouncing Ahab.—Mosaic design for Chester Cathedral by John R. Clayton (Clayton & Bell, London).

developing Dr. Salviati's business. "Salviati's mosaic" is known all over the world. It is not so generally known that the said business is now carried on under the name of the Venice and Murano Glass Company. Dr. Salviati having ultimately severed his connection with it, and started a business in his own name, carried on since his death a year or two ago by his son.

All the credit that belongs to shrewd insight, business faculty, administrative ability, and persistent energy, belongs undoubtedly to Dr. Salviati. For the actual execution of the mosaic he was, of course, entirely dependent upon Radi and his subordinates. For the rest the repute of English Mosaic (good or bad) is due, neither to Dr. Salviati nor to Sir Gilbert Scott, but to the artists who designed it—and it is mainly of them that I shall have to speak. The most prominent of these is Mr. John R. Clayton. A sculptor by training, Mr. Clayton had drifted, associated with his friend Mr. Alfred Bell, into the manufacture of stained glass. At the time he was called upon to design the decorations of the Memorial Chapel, he had so little experience in mosaic that he consented only on the understanding that he should first proceed to Italy to study it. He is an old hand at it now. In addition to the works above mentioned he has designed important decorations in glass mosaic for Newmarket, Brompton and other churches, and in the way of marble mosaic, (of which I shall have more to say eventually) the decorations of Chester Cathedral and of the Guards' Memorial Chapel, attached to the Wellington Barracks, St. James Park. Two of the cartoons for the Chester work are here illustrated; they represent the Prophet Elijah, and the scene of the Denunciation of King Ahab.

It is disappointing to find that, master as he is of the subject, Mr. Clayton speaks after all without enthusiasm of his experience in mosaic. He is not so proud of his productions in that sort as one might think he has every right to be. In these latter days, when the artist is almost bound in self-defence to be a man of business, artistic prejudices are often in the nature of hin-



Figure of Elijah.—Marble mosaic, designed for Chester Cathedral by John R. Clayton (Clayton & Bell).

drances to him. One may not be always able to avoid the pressure of circumstances which compel a man to put perhaps mosaic pictures into stone frame work out of keeping with them or

on to flat walls where the value of the gold ground is to all intents and purposes lost. The artist does the best he can under the circumstances; but he realizes that there is so much waste of art—and the thought of it is not inspiring.

Mr. Clayton has too high an idea, or I should say rather too sure a knowledge, of what art is, to be vastly satisfied with anything he has done. And as far as concerns mosaic he has felt that the conditions of English architecture, English climate, English prejudice, were against his expressing himself adequately in that medium. He felt the want always of broad surfaces of unbroken gold, such as are afforded in Byzantine architecture, and of the Southern sun to light it up; and he found it almost impossible to conform to the instruction of architectural jacks-in-office, without descending to an archaism which he knew full well to be absurd. At the same time he has not the least belief in mosaic as a medium for the realism characteristic of the nineteenth century art. If however he has never satisfied his own severe judgment, he has designed much manly and masterly work in mosaic, with which there is not much in modern English decoration to compare. Mere "trade" work, I have heard it called by painters and others who do not half know their trade. Well, some taint of trade there is in it—decoration falls unfortunately into the hands of the tradesman. Are artists to stand aside and let him have it all his own way? This I know, that the trade of decoration in England would have stood to-day on a much lower level but for the work and influences of Mr. John Clayton, whose studio has been a very nursery of designers.

The greatest artist associated with mosaic in England was Alfred Stevens. When it was proposed to fill the spandrils under the "whispering gallery" below the dome of St. Paul's with Venetian glass mosaic, four of them were alloted to Stevens, who was to design figures of the four great prophets to fill them. Mr. G. F. Watts was to design the corresponding figures of the Evangelists. Only two of the figures were executed at the time, those of Isaiah and St. Matthew,—although Stevens left sketches for his four. The superiority of Steven's design needs no pointing out. The accompanying illustration is one of a series of photographic reproductions just published by the London Autotype Company under the title of "Alfred Stevens and his work," and is reproduced by their permission. Mr. Watts himself seems to have acknowledged his master when he designed afterwards his second spandril (only recently placed in position) in which he has abandoned the altogether inappropriate picturesqueness of his earlier manner, and adopted the larger and altogether grander style which Stevens himself owed to his masters, the great Italians of the Renaissance. This figure of St John has been enlarged from Mr. Watts' small sketch by Mr. Britten, who has also enlarged Stevens' figure of Daniel, recently put up, and the two remaining prophets which will probably be fixed by the time this notice is in print. Mr. Britten who is also to design the figures of S. S. Luke and Matthew, is an able designer of the younger generation, who has here a splendid opportunity of distinguishing himself. It is as yet too early to speak of the mosaics in the Choir of St. Paul's upon which Mr. Richmond will be engaged for the next three years, and which will be executed by Messrs. Powell & Sons.

A work of some importance has lately been executed by this firm for Clifton College Chapel, from a design by Mr. Holman Hunt, who shows in it no appreciation of the characteristic qualities of mosaic. He has apparently given up the problem of adjusting the rival claims of Decoration and Picture, and produced just a painting, which has nothing to gain by being executed in mosaic. If it loses nothing, so much to the credit of the executants. At all events it is satisfactory to think that we are not dependent upon Venice for the execution of English design.

That it is possible to reconcile decorative treatment with imaginative conception even in dealing with the scriptures, is proved by the work of Mr. Frederick Shields, who designed, for Mr. Alfred Waterhouse, the decorations of the Duke of Westminster's private



Isaiah.—Spandril from St. Paul's Cathedral, glass mosaic, designed by Alfred Stevens (published by permission of the Autotype Company, London).

chapel at Eaton Hall. These are executed in marble mosaic, a material which at the onset seemed to the artist himself more than unpromising as a material for color decoration. At first when he saw the palette presented to him by the material, it depressed him terribly until it dawned upon him that by the adoption of either white or black for a back-ground he might perhaps find a way out of monotony. He made up his mind in favor of the black ground, and persuaded the architect, who was at first rather startled at the idea, to let him have his way. On this back-ground (which is not of course a dead colorless black) his figures tell out light, but never too sharply—the material vouches for that. Mr. Shields secures variety between one panel and another by restricting himself in each to a selection only of the colors at his command, and he makes sure of unity by carrying certain indispensible tints throughout all of them. The effect of color is greatly helped by his adoption of the ancient system of putting in the cut-lines in each case in a stronger trait of the color they enclose (red for the flesh, gray for the white drapery, brown for the yellow and so on) so that it blends always with the tint and goes to make color; which the hard uniform dull brown or black outline of modern work certainly does not.

Like all good workmen, he does best to design only what can be well executed in the material he is designing for ; but he gives credit to the workmen for having reproduced his design with surprising skill, and to Mr. Burke for having seconded him loyally throughout. The manufacturer seems, indeed, to have felt himself on his mettle, and to have determined to show what could be done in his material; so that the work at Eaton Hall chapel may be said to mark probably the summit of achievement, so far as concerns marble mosaic in this country. For all that, the artist found the restrictions of the material more than hard to bear—never again, he says, will he submit to that stern "mosaic" law.

A series of decorative figures resolves itself in the present day only too frequently into a row of stock dummies,



Jonah.—Marble mosaic, designed for Eaton Hall Chapel by Frederick Shields (published by permission of the Duke of Westminster).

any one of which might as well stand for the other. It is only by the scroll or emblem that ye shall know them. Mr. Shields has a wholesome contempt for such work. He believes in independence, and has the courage of his own individuality—he thinks of Nememiah as a man "with the hand of the Lord upon him," and represents him so—he conceives Moses standing on a globe diapered with the waves of the flood—he makes Jonah emerging, with seaweed above his head, from the jaws, not of the whale, but of the "great fish" which the Lord prepared:—the Queen of Sheba rises from the dead and rebukes the slayers of Christ, and so on.—His is not what is called *ecclesiastical* art, but it is the art of a deeply *religious* man. The illustrations given are from his cartoons. It will be noticed that he does not indicate the *tesseræ* in his drawings.

There is no occasion to say much about ceramic mosaic. It has been adopted mainly for purposes of flooring (as in the case of my simply ornamental design on page 86), to which its hardness suits it at least as well as marble—better, if we may trust the tile-makers; and if the design does not often rise above the common-place, we may conclude it was cheapness ruled it so. The use of tesseræ of *lustered* ware is, however, a new departure on the part of Messrs. Maw & Co., who have succeeded in obtaining a very great range of tints in lustre, admirably adapted to the purposes of ornament. Mr. Henry Holiday has made use of their lustre in the reredos, so badly placed it seems at Philadelphia, that it must needs be lit up by electricity. As long ago as the year 1866, Mr. Holiday designed some mosaic for Messrs. Heaton Butler & Bayne, at St. Lawrence Jewry, London, for the execution of which he disclaims all responsibility. The Philadelphia reredos was executed under his own direction. He was careful not to grind down the tesseræ to fit without fault, but to let the interstices show. He insisted also very particularly upon working from the front of the picture in putting in the tesseræ, not from the back of it, which is the more mechanical device of our day. By this means of course, the



The Queen of Sheba.—Marble mosaic, designed for Eaton Hall Chapel by Frederick Shields (published by permission of the Duke of Westminster).

exceeding evenness of surface which takes from the effect of much modern glass mosaic is avoided.

There is no doubt that much of the charm of old work, such as that at Ravenna, depends upon the uneveness of the surface, each separate one of the "smalti" reflecting light at its own separate angle, and upon the net-work of gray cement, which in a manner veils the garishness of the glass. It may be doubted, however, whether this is quite compatible with the *pictorial* complete-



Portion of pavement, in ceramic mosaic, designed by Lewis F. Day (Maw & Co.)

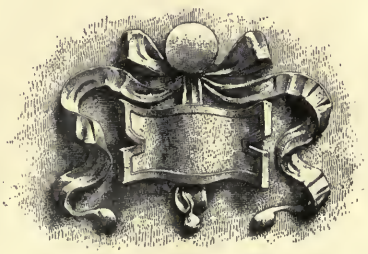


Our Lord Enthroned in Majesty.—Lustre mosaic, designed by Henry Holiday (Maw & Co., Sackfield).

ness at which the artist aims. It seems perhaps hardly worth while to design a subject in the studious manner of Mr. Holiday, each separate figure being drawn carefully from the nude, only to sacrifice all that precision of drawing, and to confuse the scholarliness of the composition, by the adoption of a method more obviously compatible with archaic figure-design and barbaric ornament. The figure of our Lord in Majesty given on page 87 is from a mosaic executed by Messrs. Maw & Co., from Mr. Holiday's design, which was exhibited at the last Paris exhibition.

Mr. Walter Crane has not been called upon to design much in the way of mosaic; what he has done shows, however, his usual craftman-like appreciation of the qualities of the material. The reproduction of his cartoon (page 79), one of a series of figures representing "The Elements," hardly does him justice. The photograph has misrepresented the value of the colors, but the design is otherwise not unworthy of him. He is always at home with four-legged creatures. Mr. Burne Jones' important mosaics are, as every one knows, to be found, not in England, but in the American Church at Rome. Mr. E. J. Poynter designed, long ago, a figure of St. George for the Houses of parliament at Westminster, but it scarcely shows him at his best, and is not any way, a remarkable specimen of mosaic. There is much else, no doubt, that would be well worth mention did space permit, and more still, of which the less said the better, such for example as the pretentious crudities which deface Mr. Butterfield's architecture at Keble College, Oxford. One is often lost in wonder at the way in which out of anything so beautiful as the "smalti" or colored glass, results so absolutely hideous to see are achieved. It is astonishing the talent displayed by some in the way of misusing a marvelously beautiful material. Still, though they be the majority who misuse their opportunity, enough of good, and even of very good, work remains to show that the art of mosaic is really alive among us, and has a future before it.

Lewis F. Day.



ARCHITECTURAL ABERRATIONS.*

No. 4.—THE PEDDIE MEMORIAL CHURCH, NEWARK.

WE have some hesitation in setting down the Peddie Memorial Church in Newark as an aberration, which in these pages has perhaps come to bear a somewhat invidious and condemnatory sense. This acceptation is borne out by the dictionary, which, indeed, goes so far as to define "aberration" in turn as "mental weakness" and "moral perversity." We have no sort of intention of imputing moral perversity to the designer of this edifice, nor even mental weakness. As was said by one character of another in a novel of Charles Reade's: "It is not from want of brains he is mad." There is, however, another definition which comes timely to our rescue: "that which differs from the customary structure or type." That settles it. After that no man can deny that the Peddie Memorial Church is an aberration.

The problem was a modern "auditorium church," and the designer of this edifice undertook to solve it by means of a circular church. That is a legitimate solution, doubtless, and might result in a very interesting edifice, though certainly in one differing from the customary structure or type. There used to be a circular church in Madison avenue, which may or may not have answered its practical purposes. Architecturally it was a ghastly performance in corrugated iron, with no more ecclesiastical or other desirable character than a gas tank. A circular wall covered with a domical roof is the essential design of the Peddie Memorial, and comprises the auditorium. The form thus attained is objectionable, because having no angles and no features, it offers no points for architectural emphasis. The prototype of all circular domed buildings, the Pantheon at Rome, suffers from this defect, which it was there attempted to remedy by adjoining a portico to the building. But this fails to answer the purpose, and has been criticised with justice as a monument built in front of another monument, to which it is attached only mechanically and not architecturally. If the angles of the square in which the circle is inscribed were filled out with subordinate masses, an architectural form would result which would give the sense of stability and repose which is lacking to the circle, and the structure might become an architectural composition with a harmonious balance of masses and relation of parts. The entrances and staircases to the circular

* We are making a collection of "Aberrations," and shall present one to our readers in each number of THE ARCHITECTURAL RECORD.

auditorium would naturally take their place in these outlying and subordinate buildings.

The main defect of the Peddie Memorial Church in general composition is that the angular and rigid masses which are needed to assure the eye of the stability of the mass are, in the first place, set not at the outer angles of the including rectangle, but, with the exception of the subordinate building at one end, are set so as to cut the circle in the plan; and in the next place, that they are developed into towers and crowned with spires. The effect of this disposition is to confuse the motive that generates the whole structure, and to leave the dome no longer a single or a crowning feature, but to cut it up into bits and belittle its importance. The builders of the mosques acted under a much truer feeling in detaching the slender minarets that if incorporated into the domed structure, would have injured its effect, which is enhanced by their isolation. It is to be gathered, indeed, that the designer's purpose was to "'stablish" and fortify his building by strong and stark masses at the angles, that at the outer corner being the largest and strongest, as the most important in the principal perspective view. But this purpose cannot be said to have been artistically carried out, and the impression actually conveyed is of a domed circular building, obscured by incongruous towers, of which one, the little tower built up against a house gable, and pretty plainly without any function, except to correspond with the tower at the furthest corner, even betrays a defective sense of humor.

Very much more, of course, is to be pardoned to an architect who is working out something "differing from the customary structure or type," than to one working upon the lines of an accepted type, but the intrusion into a circular church of the double towers that properly flank a gabled front seems clearly a solecism. The general treatment of the circular building itself and of its outlying features, seems to us very happy. The happiest point in it is the division of the wall into three parts vertically, a basement, a principal story and a low attic, by means of the large roll-mouldings that cross it and that traverse also the towers and the subordinate building, so as to ally them as much as possible with the main building. The round wall that emerges at the front between the two towers is in itself a very satisfactory piece of design. Its three members are happily proportioned; the bull's-eyes of the attic give a meaning and force to the crossed mouldings that frame them and the upright rolls justify themselves by the depth they add to the openings and by the vigorous batter at the bottom of these, by which they are receded from the plane of the lower wall. In the side the treatment is less successful, the trellis of mouldings in the attic looks capricious, being no longer explained by the openings, and below the sufficient lintels of the openings of the basement are other lintels merely inserted in the openings and without visible means of support. But one thing must be said in high praise of the whole exterior, and that is that the architect was evidently building a structure of masonry, and not merely making a drawing to be afterwards translated into masonry.

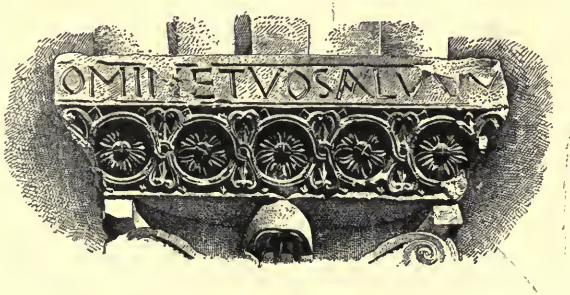
Of the detail a general criticism may be made that for its purpose it is unnecessarily rude in character and that its rudeness is by no means wholly justified by the untractable granite in which it is wrought. This rudeness is partly in the design, as for instance in the omission of the abacus over the capitals of the columns throughout, an omission which involves the projection of the capitals themselves beyond the piers they carry, and in the aborted capitals at the imposts of the arcade. It is even more a matter of scale, which is exaggerated in the detail throughout, and becomes positively gross in some features, especially in the frieze which takes the place of the attic in the belting of the towers. The towers themselves, incongruous and confusing as they seem, are designed with a vigor that does not escape rudeness, and with a massiveness that is evidently misplaced when it walls up almost solidly all the openings of what seems to be a belfry. The church, with its aberration "from the customary structure or type,"



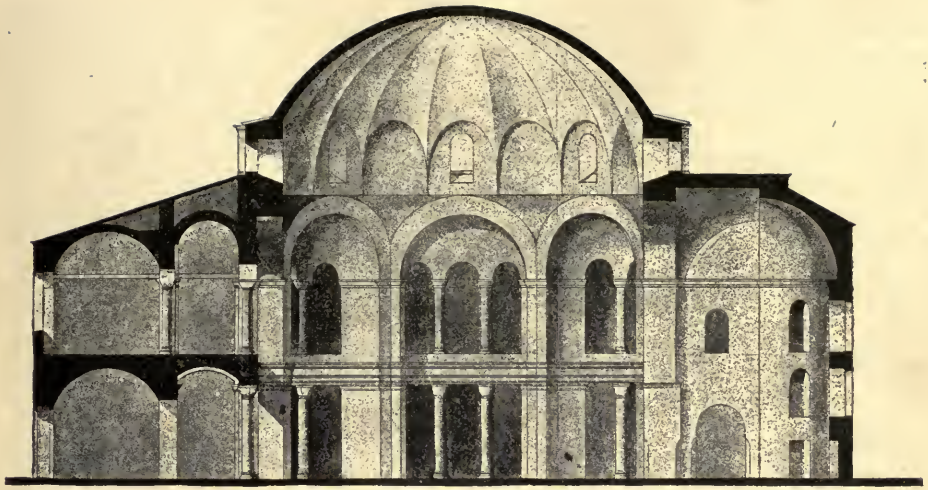
THE PEDDIE MEMORIAL CHURCH, NEWARK.

and with the incongruities and shortcomings that prevent it from establishing a type of its own, is nevertheless an interesting and suggestive performance, and a second attempt by its author in the same direction would doubtless attain a still higher success.

The interior is by no means so successful as the exterior. It is very full, almost too full of cleverness, for the architect apparently did not realize in designing it that an architect's smartness is given to him to be trained and brought into subjection. It would be impossible to carry a circular roof over so large a space without a construction that would be capable of an interesting architectural development, but it does not appear here what the construction is. There are arches at the sides that may represent trusses of metal, and perhaps the curious soffits of paper framed in wood are meant to suggest such trusses. But the apparent arches are long voussoirs of pine boards, the roof is sheathed into invisibility, and the feature of the interior is an enormous piece of wooden tracing that has no structural significance whatever. The detail by no means represents the same knowledge and skill in carpentry that the exterior does in masonry, or the same idiomatic treatment of material. The best of the detail is in stonework or in metal, but of this there is little; and the absence of a sense of humor, which upon the outside is noticeable only at one or two points, is here injuriously pervasive.



There are beauties that die with the dawn,
 As glorious quite
 As those of the light
That come in with the Dawn;
Silence has charms that are broken
By the sweetest word spoken;
All things are born at a cost;
They come, and lo! something is lost.



Byzantine Architecture.

Part II.—NEO-BYZANTINE.

WHEN Sta. Sophia at Constantinople had once been built, it was naturally taken as a model for other large churches or cathedrals. All the principal mosques at Constantinople built by the Turks are from the model of Sta. Sophia—with modifications, of course. Sta. Sophia at Salonica is a striking cathedral inside. It looks vast as compared with most of the other churches there, with the exception of St. George, and this scarcely has the look of a Christian church; but when I saw it I had not seen the original, nor the great Turkish mosques. The idea is a fine one, if not carried out on too small a scale. This church is now merely whitewashed, so there is nothing but the conception to captivate you—there is nothing to be set down to the impression produced by gorgeous decoration—so you may bear in mind that a grand idea, properly carried out, produces a grand effect. Externally it has a Turkish porch extending across its front, and inside a narthex, rather over 18 feet wide and 104 feet long. The aisles are about 18 feet wide and 86 feet long, and must, I suppose, have been separated from the narthex by curtains. The length of the nave from the narthex to the end of the apse is 105 feet, and its width is only 33 feet; but it has two square recesses at the sides of the dome, making it there 56 feet, while the nave at Sta. Sophia, at Constantinople, is 265 feet long by 110 feet wide. You see, by comparing the plans, that it is without the two grand hemicycles, that the bema is much deeper, that the screen walls are carried back instead of being in line with the face of the dome piers, and you also see the two chapels or vestries on either side of the bema have an apse to each. Above, the gallery goes over the narthex as well as the aisles, as at the great Sta. Sophia. At one time this cathedral was sumptuous with marble linings and mosaic, but the marble linings have disappeared, and the mosaic is now obscured by whitewash and by the smoke from the fire. The fire has also revealed an undercoat of plastering in the narthex and aisles on which the

remnants of frescoed figures and ornament are to be seen. The cathedral externally has a more architectural appearance than the great Sta. Sophia. The Turkish portico, consisting of an arcade of nine columns, has doubtless been a great improvement to its appearance; above this is a narrow strip of wall, the front of the gallery over the narthex, with twelve small round-headed windows in it, two of which are blanks. These small windows give a scale to the building, and make it look larger than it is; above them is a still narrower strip of wall, with one window in the middle. The drum of the dome is square, and is pierced by three large round-headed windows, which give light to the windows of the internal circular drum. Above this is a strip of the circular dome, covered with lead, and from this to the square wall below are flying buttresses; above there is the segmental cap of the dome, covered with lead. The Turks have improved the appearance of the dome by the addition of a little dome-shaped piece, from the centre of which springs a finial.

In small churches there was an inclination to make the central dome stand on four monolithic marble columns, as may be seen at St. Bardias, at Salonica. It is called so in Texier and Pullan, but was dedicated to the Virgin in the year 1028 by Christopher Bardias and his wife and family. It has the three apses, and an octagonal drum to the central dome, with windows in it of two tiers; but in this case the dome is not seen externally, the drum or central tower has a hipped roof, it has two later domes over the gallery above the narthex. St. Elias, at Salonica, has a peculiar plan; it is trefoil with a straight end,—the three foils form the bema and the two transepts; it is without aisles, but has two tiny chapels with apses, in the huge piers of the bema, and a large narthex and gallery over. The narthex is vaulted on four columns. It is about 25 ft. by 31 ft. inside. From the appearance of the church I should judge it to be late.

I will just mention the Church of the Monastery in the Country at Constantinople (*Μονη τῆς Χώρας*), because Ducange says the original church was built by Justinian. The Rev. Canon Curtis says it was built before Constantine's time, *i. e.*, over the bodies of St. Babylus and two other martyrs, who suffered under Decius in 250; and Fergusson believes that its front gave the idea of the front of St. Mark's at Venice; though, for the matter of that, many Byzantine churches have similar features,— one side of St. Bardias, for example.

The present church was either rebuilt or restored in the reign of Andronicus Palæolagus the elder (1283–1295). It now consists of the central church with another adjoining it on the north side, and a two-story building on the south, and is celebrated for the beauty of its decoration. The narthex and exonarthex have the remains of some of the most beautiful mosaics that remain to us. The north church has been adorned with figure painting in fresco; the central church has its walls encrusted with lovely marbles, pietra dura, and geometrical mosaic in gold and colors. It is adorned with some of the most beautiful acanthus work carved in white marble I have ever seen; in it was kept the portrait of the Virgin, attributed to St. Luke. I believe the marble doors once covered this portrait. A robe of the Virgin, which was carried in procession round the walls of the city when it was threatened, was alternately kept in this church, and the Hodegetria.

From Justinian's day there seems to have been a strongly-marked inclination to arrange churches on the following plan:—A square was set out as big as you could afford to build your central dome, with columns or piers at the angles; from the centre of this square half circles were turned, and the extremities of these formed the external lines of the aisles and of the east and west arms of the cross; to the east there was a deep space beyond, with the apse at the end forming the bema; the four squares formed by the aisles, and the two similar passages crossing east and west, round the square of the central dome, were ceiled with small domes level with the other vaulting. The aisles were carried as far as the square part of the bema, and then had an apse to each, generally projecting

externally. A narthex was added at the west end, or a narthex and exonarthex. As the time went on, these subsidiary little domes were carried up on drums to group with the central dome, and the narthex also sprouted into domes. This plan seemed to take the fancy of the Westerns as well, for I found that St. Mary-in-the-Fields, at Piacenza, built in Renaissance days, was a complete example of this method, only the central dome was veiled externally by square erections; the four little domes had drums, and showed externally.

When more room was wanted in the church than the spaces I have described, another bay was added at the west, or two additional aisles, or four chapels were put outside the first aisles. The arrangement before mentioned, occasionally with slight modifications, may be seen at St. Theodore, the Pantocrator, the Theotocos at Constantinople, and at St. Bardias, at Thessalonica; Sta. Sophia, at Trebizond, is an imperfect specimen; at the old Cathedral St. Theodore, and the Kapnikarea, at Athens.

In the case of St. Nicodemus at Athens, at the church of the Monastery at Daphne, near the Bay of Eleusis, and at St. Nicholas at Mistra in the Morea, the central domes come up to the bema, the arms of the cross are made much narrower than the diameter of the dome, and there are additional aisles or chapels on both sides; the two first of these churches have squinches or conchs instead of pendentives. St. Mark's at Venice is somewhat after the fashion of Procopius' description of the Sti. Apostoli at Constantinople, only St. Mark's is said to have been built in 1043, in the reign of Constantine the Tenth (Monomachus, Finlay calls him, the Ninth), and covered in 1071, in the reign of Romanus, Michael the Seventh, or Nicephorus. The domes at St. Mark's are pierced with windows in the dome itself as at Sta. Sophia.

The plan of St. Front at Perigueux is very like that of St. Mark's—so like, that if one were not a copy of the other, they were taken from a common model,—possibly the Sti. Apostoli at Constantinople. However, the construction of the two is absolutely different: that of St. Mark's is pure Byzantine, brick veneered with marble, or covered with mosaic; St. Front is of worked stone,—walls, pendentives, cupolas, and all. It is extremely unlikely that if Byzantines built St. Mark's that they were also masters of stone-cutting, and they must have been to execute St. Front, unless we suppose they merely gave the plans and sections, and left the French architect or master-mason to construct it in his own fashion, for the stone-work does not look like Byzantine work. There have been bitter controversies on the question of who designed and who carried out St. Front, and as I have no fresh materials to bring that might settle the controversy, I will leave it as it is; I may, however, say that there are a few small windows in the domes of St. Front. De Verneilh has published a book and a pamphlet on this subject.

The old cathedral at Athens is curious for many reasons; it is a very small church, only 24 ft. 2 in. wide over all, and 37 ft. 6 in. long. exclusive of the central apse, which projects about 3 ft. more; it has a narthex about 6 ft. 8 in. wide, whose length is the whole width of the church. The church has three apses, and a central dome on a drum, and the internal cross is made by the four barrel vaults surrounding the dome. The nave is only 8 ft. 2 in. wide, and the bema and parabemata are cut off from the nave by the iconostasis. Outside, the cross is brought forward over the narthex, and over the bema to the front and back walls.

The cathedral shows on its face some attempts at elegance; it was evidently built during or after some occupation of Athens by barbarians, for it has barbaric carvings on it, and it has also a family resemblance to the churches in Armenia. It now stands in an open square, with its main front towards the street. It is built of large stones, with a brick course between each one of stone; its front has a dentil cornice with a carved frieze, which looks like a bas-relief, on which crosses have been worked or let into, and with a necking; at each end of the cornice is a Classic

pilaster cap. In the centre and immediately under the frieze is a moulded marble arch forming a discharging arch over the lintel of the door; a moulding runs up vertically from the bottom of the ends of the archivolt, forming plain marble spandrels, and the arch itself is filled in with a carved slab with a cross in the centre; the top of the lintel is moulded, and this moulding runs across the front of the church; the lintel below is carved with pateræ, and two lions facing a cross in the middle; the door below has two plain marble jambs, which go down to the step, and there are no windows in the front below the cornice; between the necking of the frieze and the moulding on the lintel are three carved slabs on each side of the doorhead, roughly symmetrical; in the centre above the cornice is the gable end of the upper roof, forming one arm of the internal cross; this gable has a two-light window in the centre, and the rest is filled up with carved panels; the north flank has a doorway in the middle, slightly projecting, and a window between it and the west end. The cornice runs through, and is stopped by the doorway, and over the doorway is another arm of the cross that gables, and this end of the cross above the roof has also a double window in the middle. A sort of half pediment is made between the west end and the gable end of the external cross by the flank wall of the lean-to roof, and carved panels are let into this side wall. The back or east end is finished with a pediment, from the middle of which rises a vertical and central straight piece, also gabled; against this the roof of the semi-octagon of the bema abuts; below, in the end of the semi-octagon, is a two-light window, and there are two other small arched windows, being those of the other two apses, which in this case do not project. The upper part of the east end is covered with carved slabs. The south flank has a line of carved slabs and one window, a doorway with an arch over, and the lower part was once painted in fresco; at the west end of this side there is the half-pediment, like the one on the north side, and the fourth arm of the cross with a two-light window in it. From the middle of the church an octagon drum rises from a square base with long circular-headed windows, whose semi-circular archivolts cut into the dome: the dome is tiled, and has a cross for a finial. The carved marble slabs inserted in the external walls are of all ages, and the carving ranges from pure Classic to pure Barbaric, and they are placed according to their form, but quite irrespective of the ornament on them. Some are upside down, and some horizontal bas-reliefs are put vertical. One panel of barbaric carving represents a hare in the claws of an eagle. Another a wild beast, possibly a cheetah or a lion, seizing a fawn. It is an episode likely to strike a pastoral or hunting people. It is repeatedly used as a simile in the "Arabian Nights," though the lamb often takes the place of the fawn, and this or a cognate subject is of remote antiquity. In the Odyssey we read that:—"Goodly Odysseus wore a thick purple mantle, two-fold, which had a brooch fashioned in gold, with a double covering for the pins, and on the face of it was a curious device: a hound in his fore-paws held a dappled fawn, and gazed on it as it writhed." (Lib. 19, Butcher and Lang.) This device is still used in the East; you may often see it carved on the blades of Indian swords or daggers, just below the hilt.

Whenever we see the hideous octagonal drums with their window archivolts cutting into the external dome, I think we shall be right in attributing them to a late date.

It is not easy to see how the external walls of churches are built at Constantinople, as they have been so repeatedly whitewashed, but I believe the plan was the same as that pursued at Athens; each course of the stone-work had one or more courses of brick-work between it and the next, and the Byzantines mostly used thick mortar joints, as thick or thicker than the brick, but in addition to the horizontal courses the bricks were used in the same manner in the vertical joints, and in some cases the stones appear to have been kept short, and the spaces between these ends are filled with mortar,

and with the bricks in the vertical joints cut in imitation of Cufic characters: at St. Nicodemus at Athens there is a plastered string, ornamented with this work, each bit of Cufic writing being separated by a star in brick; ordinary strings when not of marble are made by setting the bricks diagonally between two courses, flush with the wall, the points of the dog-tooth come out flush with the horizontal courses. For eaves the diagonal bricks project. At the Sti. Apostoli, at Salonica, there are patterns formed on the walls with bricks laid zigzag, horizontally, and by vertical interlacing zigzags. Windows have single, double, and triple lights. In each case, the arch generally consists of two rings, the mortar joints being thicker than the bricks. These arches are capped by circular or segmental archivolts, with zigzag bricks in them, and two-light windows often have a brick star in the spandrel between the two arches. The mullion is usually a marble slab, about 3 in. to 4 in. thick, with both ends forming a quirked bead in section, or a half octagon or hexagon. The top is finished with a cap, sometimes with a rosette under it, and sometimes with a rosette only. These little attached columns sometimes have splayed bases and sometimes none. The arch, which is usually stilted, is carried on a cube of marble supported on the mullion; this cap is slightly splayed on the two sides, and deeply splayed at the ends. The end splays are sometimes plain, but more often carved. Sometimes the ends only project a trifle before the arch, and sometimes to the whole extent of the end splay, suggesting that a regular length was kept in stock. At the Church of the Monastery in the Country at Constantinople the mullions are of slate or of dark gray marble, and only look about 2 in. thick, have square ends, and are ornamented with sunk lines at top and bottom, and with the usual cap on the top. Roofs are mostly covered with tiles, the water tiles being segmental in sections, and the covers half-round. At the eaves two dabs of mortar are put in the spaces between the segmental tiles and the roof, and another dab into the hollow of the half-round one, forming a line of rude antifixæ. These devices might be adopted for cheap brick cottages or churches in the country; it is a sort of bricklayers' art. At Athens the churches are mostly minute in size; at some of them I could almost touch the sides of the nave with my outstretched arms. But at present we only see churches that are on a small scale, the great Byzantine churches of Athens were Sta. Sophia, afterwards the Church of the Virgin, St. Nicholas, and St. George. I may here say that Gibbon appears to have been mistaken in confounding our patron saint with the fraudulent pork butcher of Cappadocia; these churches are better known as the Parthenon, the Erectheum, and the Theseum. On the marble walls of the Parthenon the remains of pictures of Byzantine saints and ornament still remain, and in the Theseum the Byzantine vaults of St. Nicholas still exist. The little Greek churches are curious from an archæological point of view, and are as superior in practical science to ancient Greek construction, as they are inferior to it in every æsthetic quality. Besides the stately ruins of the Acropolis, where exquisite architectural simplicity has been carried to the highest point man has yet attained, where no touch of the chisel has been given except to an artistic end, and not one in vain, where the greatest sculptors have adorned the building with the most perfect specimens of the human form, and with masterpieces of composition, we scarcely bestow a glance upon one of the little Byzantine churches beside them. Still they have their use in illustrating the history of architecture and of humanity. What we should look for, and what we shall certainly find in them, is the science with which domes are poised and the ingenuity displayed in new arrangements of plan without diverging in the main from the established type. Almost all Byzantine churches are domed; for internal effect you want the dome to rise immediately from its pendentives or squinches, so that it may form part of the general effect, when it is on a high drum you see nothing but a light space until you get under it, and then your attention is confined to the drum

and dome. It is like an episode in writing, it may have what merits you please, but it interferes with the continuity of the main subject. The use of drums may, however, be looked on as a benevolent invention, when the drums and domes are not too ugly, for many more see the outside than the inside of a building.

I think that anything in architecture which merely causes surprise, reduces the architecture that employs it to a secondary level, still in that level it may be considered praiseworthy. The small internal domes, on pierced drums, have a startling effect; you look down a long aisle or narthex without windows, and see patches of bright light, and when you arrive at one of these patches and look up, you seem as if you were looking up from the bottom of a fluted well, for most of them are fluted and pierced with sufficient windows to make them seem all light in a sunny clime.

Thanks to Mr. Falkener, we have the drawings of St. Clement's at Ancyra, in Galatia, given in Fergusson's "History of Architecture;" in one respect it resembles St. Theodore, at Constantinople; the apses of the aisles are continued round so as to make circular halls; it has also a short drum to the central dome, with four windows, but the bottom of the dome itself is pierced with many windows, as at the great Sta. Sophia. Were it not that St. Mark's at Venice, built in the eleventh century, has the same features, we should assign St. Clement's to an early date. We want illustrations of many more churches from Asia Minor, and more dates, before we can venture to assign the period of construction from peculiar features. I will just mention the churches in Armenia, because they have a strong resemblance to those in Athens, though rather superior to them in style, with domes of Persian shape.

The church at Dighour, in the neighborhood of Ani, has a plan of the regular orthodox type, a central dome on four large square piers, forming a Greek cross by means of four barrel vaults on the four sides of the dome, with an apsidal bema to the east, very narrow aisles, and no narthex; at the east end of the aisles are two oblong chambers, and from there being two small apses north and south at the east end beyond the walls, and in the open air, it has the appearance of having had a lean-to roof, or a small colonnade outside; at Usurlar these outer colonnades or arcades still exist, but the east ends of the aisles and outer arcades are square, though the bema is apsidal. Externally, the church has a strong resemblance to some of the buildings in Central Syria; the lateral sides of the cross are shown by projection above the roof gabling as at Athens, and though the east and west arms are merely indicated by a slight vertical break in the main gable, this upper part is gabled too. One of the most curious features in the church at Dighour, is the occurrence of six buttresses with off-sets and water-tables at the west end.

In a course of lectures it is impossible to give examples from every country where Byzantine Architecture prevailed, but I may say that the ancient coptic churches of Egypt are very curious; they all appear to have a central apse, a few only have the three, and half the dome is over the bema, *i. e.*, the walls of the apse form the spring for it; these coptic churches are curiously divided by screens, and what looks like a narthex has a tank in the middle.

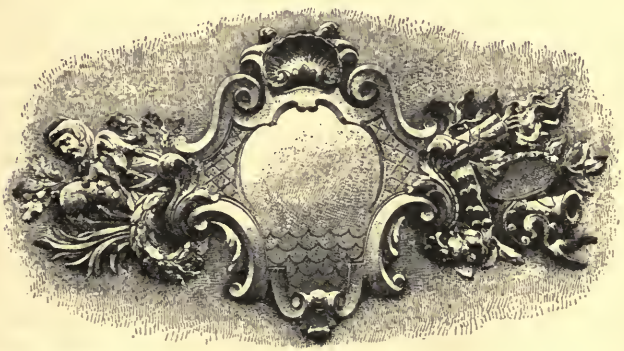
Mr. W. Boutcher, who was engaged on the Assyrian discoveries, has been amiable enough to entrust me with his sketches of the church of Mar-Yakoob (Bishop James), at Nisibis, made in the year 1855. I believe no plan or description of this church has ever been published. The town of Nisibis is situated on the plain at the foot of one of the spurs of the Mount Masius, and was the key to the Valley of Mygdonia, from which Mesopotamia was mostly entered by the Persians; it had successfully resisted two attacks of Sapor II., the Persian King, and on the third attack Bishop James urged on his townsmen the necessity of resistance. Sapor had to raise the siege on account of an incursion of the Massagetæ. Nisibis was ultimately conceded to Sapor by Emperor Jovian, in the disastrous treaty made immediately after the death of Julian in his Persian campaign.

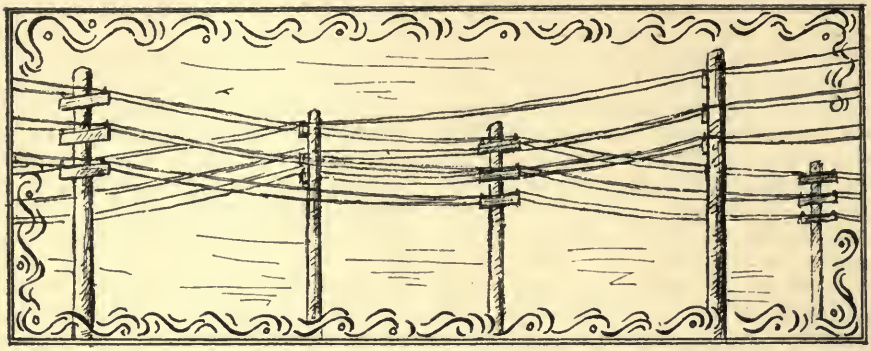
The church was in 1855 a double one, but there was a tradition that it once was triple, the domed one with the narthex being the middle one ; each of the two remaining churches has an apse at the east end, the shorter one has a flat apse at the west end as well, with a semi-circular niche in it. In the larger church there remained one aisle going up close to the apse, and suggesting that there had been another aisle ; but there was also a tradition that this was a subsequent addition to support the vault ; this church was vaulted with a pointed vault. The recesses at the ends of the aisles, in a line with the springing of the apse, are square. An empty sarcophagus with a cross on it was found in a vault 14 ft. by 8 ft. under the church, and was supposed to be that of the Bishop. By some the centre church is believed to have been a mausoleum to the Bishop.

Mr. A. Graham has been kind enough to lend me one of his drawings of the Basilica at Theveste (Tebessa), the last Roman town in North Africa, being about 100 miles west of Thapsus, and at the same distance from the north shore. The old Roman Basilica lay north and south. The Basilica was surrounded by cells for monks. A bema was got to the east by a descent of thirteen steps from the outer wall of the Roman Basilica, and has apses north, south, and east, much like St. Elias at Salonica. To the north and south of the east apse are two quadrangular chambers communicating with it.

Professor Aitchison.

(TO BE CONTINUED.)





CROSS-CURRENTS.

AN artist named Walter Crane has lately been at some expense of words to prove that the "restless and discordant aspects of much of modern life, the result of certain economic conditions, are unfavorable to the development of a fine artistic sense—and that these economic conditions discourage artistic sincerity and tend to reduce artistic production to the level of all other marketable products—produced for profit rather than for use or enjoyment." Thus, according to Mr. Crane the finer part of the artist's nature is suffocated by the mercenary sordid atmosphere wherewith he is surrounded. He needs an environment freer, larger, more stimulating and less offensive, and as socialism proposes to waft into existence such an environment, socialism should "appeal" to artists. Now, that this is a very convincing attack on modern life, we do not for a moment believe. What portion of truth Mr. Crane's crude and overdrawn sketch of our surroundings contains may be recognized without leading to the astonishing conclusion that he so confidently adduces; and as a matter of fact Mr. Crane's sketch does contain only a small portion of the truth. It may be that the "artistic sense" is as much afflicted by modern life as Mr. Crane would have us believe; but this does not make very much difference to one who does not accept the "artistic sense" as a criterion of things as they really are. In order to obtain such an agency of illumination, we prefer to leaven Mr. Crane's "artistic sense" with a little brain stuff; and so having obtained an implement of vision, we can try to see things not in part but in whole.

When we examine Mr. Crane's articles through these spectacles of truth, we are at once struck by some peculiarities in the relation between Mr. Crane and his subject matter—Mr. Crane being, of course, an embodiment of "artistic sense." An artist is necessarily and fundamentally the creature of his time; he can express only the ideals of his own age. Even when he pretends to like his age least, he is most assuredly under its domination, for its spirit builds the very temple of his isolation and then moves aside to laugh at his impotence—for impotent both as artist and thinker the alienist is, There are periods in which rebellion is necessary, but rebellion must be prompted by outraged morality. It is when the law of God is violated that Isaiah begins to denounce. Denunciation that proceeds from an offended "sense" is always measurably querulous and futile, and nothing shows more clearly the futility of Mr. Crane's point of view that the conclusion to which he comes. The socialism which, as he promises us, is going to remove all the restless and discordant elements in modern life and prove so highly beneficial to the development of the artistic sense, is simply one of those evasive fictions which an imaginative sentimentalism in its craving for a state of ideal satisfaction projects into an indefinite future time. How the human race is to reach the ideal conditions with nothing but its present depravity to start with is a question that is never answered. But it is not by supplementing Mr. Crane's defects of vision that we would redeem modern life. We would rather accept in a measure that part of the present which alone he is able to see and show as far as we can, that it is not so destitute of alliance with the larger things in life as he would have us believe. We have, then, no intention of denying that the industrial element is important in modern society as it has been important in no previous society; we do not deny that this industrial element is responsible for much in our surroundings that is ugly, repellent and degrading; we do not deny that in its excess industrialism is dangerous in tendency, and corrupt in spirit—a vile and filthy thing. But for all that, we affirm confidently that the industrial development of the present time

is fraught with splendid moral and artistic promise, and is alive with spiritual significance—just because this development, by its increasing mastery of external things tends to free mankind from the dominion of circumstances and to leave him free to expand as his own best nature counsels.

Both the critics and apologists of prevailing conditions too often mistakenly assume that money-making is nothing but money-seeking. The statistical economist, for instance, dwells lovingly on the amount of horse-power used in our industries at the present time, on the millions of yards of cloth and the millions of tons of iron that we manufacture, and in the thousands of miles of railway that we operate. His brother, the social economist likes to point out the immense advantages which mankind have gained from the telegraph, telephone and other typical modern inventions. They use these facts and figures to prove that the contemporary man and woman are considerably happier than any of their predecessors. This, of course, rules the moralist and the artist. As the trustees of the spiritual welfare of mankind they indignantly deny that the said telephones and tons of iron in any way indicate that we are becoming more human than we were. But both our economist and moralist generally fail to discover the true significance of the swelling statistics. The important fact is, not that these figures are the "biggest on record," the important fact is that the people have enormously increased desires to gratify. The large production of commodities has for its correlation an equally large consumption. Millions upon millions of people are buying these products, and buying them because they want them, Less than ever before are they resting satisfied with what they have got. They want a greater variety of things than they ever wanted before, and they want this greater variety in greater quantity.. Now this is a fact of portentous human significance ; and this significance lies not so much in the circumstance that these demands are satisfied, as that they exist and increase, and that in order to satisfy them men are working with greater energy, and keener intelligence.

Thus far this enlargement of the average human personality has manifested itself principally in material and often in grossly material ways, but we still insist in spite of this fact, that this economic development results from and assists an enlargement of human character, and not, as Walter Crane and many others would have us believe, a contraction thereof. When the ordinary sluggish brutish man is aroused from his animal slumber, the awakening can hardly be expected in the beginning to take a highly-cultivated form. If hitherto his desires have been limited to food, clothes and beer, an arousing of his nature does not mean that he will immediately seek high art, Richard Wagner, and a university education. It means chiefly that he will want more and better food, more and better clothes, more and better beer, and that to these desires he will add others of much the same kind. Progress does not go by jumps. Master Workman is just as far as ever from being an embodiment of sweetness and light; and those writers who claim that this access of desire has anything but a momentary value are doing the people an injustice and injury. The present stage is worthy because of what it leads to. If the process were already ended, it might as well never have begun ; but it is not already ended. The increase of individuality is always manifesting itself in new and varied ways. It has resulted not merely in an increase of desire for more bread and beer ; but in a firm determination on the part of the working-men to readjust their human relations to the larger value which they put upon themselves. In the beginning of the industrial development, they would permit their employers to work them for such a pitiful sum that wife and children had to slave so that the family might live ; but the very struggle that this brought about in the end increased their sense of their own importance. They began to fight for more wages and shorter hours of labor—which was tantamount to an affirmation that they were human beings and not machines. Then commenced the warfare between employers and employés—a struggle in which both of the contending parties have been fighting the other's battles as well as their own. The employé's increased aggressiveness is but another side to his increased power of consumption, while on the other hand the employer's purpose to produce as cheaply as possible, which necessitated a resistance of the demands of his employés is the very circumstance which has made the increased power of consumption possible. The struggle is still going on ; and society, instead of being the loser thereby, as some writers tell us, is in truth the inevitable gainer. Both parties are yearly showing an increased moderation. and an increased power of organization ; and there are spots in which the conflict has resolved itself into co-operation. Whatever the outcome, however, there can be no doubt as to the meaning of the conflict. It means that the average man, freed from the external impediments of the past, is getting into motion.

Now let us see, what can be said for another

element in the prevailing economic development—the element of machinery. Machinery, by which we mean all the implements and expedients used by an industrial society, comes in for a good share of the abuse which is lavished by heated moralists and the apostles of culture on an industrial society. This machinery is represented as being something distinctly antithetic to culture; and it is asserted that unless culture braces up and despoils machinery of some of its dominating power, the modern world will drift towards anarchy. People making such an assertion misconceive, we believe, the relation subsisting between culture and machinery. It should be remembered that machinery is but another word for external facts, and that it is only through such external facts that culture can realize its own ideals; consequently while culture may be obliged temporarily to place itself in opposition to machinery, in the long run it is obliged to make use of machinery for its own purposes. Furthermore, the fact that culture can make use of machinery for its own purposes, might lead one to suspect—in face of some elaborate mechanical process—that, worthless as that process appeared in itself, it might, through the course of many years, be making for the very thing to which it is superficially opposed. For, in the most general terms, what does machinery tend to do for our times? Is not its tendency simply to increase the efficiency of human labor, and in the end will not the result of the development of machinery in human life be to raise human labor to its highest power? It is important to remember that in relation to an industrial society machinery represents the active element in man. So that the greater the mass of machinery which a society can show, the greater its activities. The stupendous amount of horse-power which the world is using in its industries has not only a human significance derived from the fact that somebody is consuming all that this horse-power produces, but it has the further significance of tending to make human labor unnecessary by multiplying its product. In the end, if we can only get enough of the right kind of machines, the expenditure of human energy necessary to the gratification of man's material wants may be reduced to a few hours a day—possibly.

But, it may be asked, is there not a contradiction here? You have been saying that the significance of the modern industrial development lies in two directions. On the one hand the ordinary men and women are undergoing an increase of nature, through an increase of desires and of the ability to gratify them; on the other hand the enlarged use of machinery is rendering human labor progressively less occupied by increasing its efficiency. If this is true, will not the wants to be gratified increase in about the same proportion as the means which are being taken to gratify them; and in that case, how can any economy of labor eventually result? The answer is not far to seek. The desires to be gratified do not increase in the same proportion as the means which are being taken to gratify them. The reader will remember that these increased demands upon life were pointed out as only the first step towards a higher state of being: but these desires cannot go on increasing indefinitely. An element of warfare and exclusion is almost immediately developed. It is found that the desires conflict; and that some of them consequently have to be subordinated to others. That is, if Master Workman wants to support his family comfortably, he must not drink too much beer and smoke too much tobacco. In the same way he finds at the very outset that, in order to fulfill these new demands which have arisen within him, he must learn and work; and the learning and energy also immediately tend to restrict his desires. It has been found, for instance, that one of the most effective agencies making for temperance is the refusal of the employers to hire men who are known to drink too heavily; and the workmen find this out for themselves—apart from any dictation by their employers. They gradually learn to discriminate between those desires, the gratification of which stimulates them in their work, and these desires the gratification of which interferes with their work. Thus from the necessities of his situation they are obliged to practice self-denial; and so they become sounder and healthier human beings, with increased foundation for enlargement and increased power of resistance. Thus does a still higher type of humanity tend to emerge from the conflict—a conflict which is practically the old one between the passive and active sides of our natures. Progress sets in when the two sides develop harmoniously, and when the enlargement is conditioned on the facts of Man's nature and his circumstances.

Thus we see how the moral element may be introduced into a society which in the beginning is by assumption purely industrial. Did it not become increasingly moral, industrialism would be suicidal, yet it would perhaps be very difficult at the present time to prove inductively the essentially moral tendencies of a trading society. We are now in the midst of the conflict engendered by the increased determination of the people to assert themselves, their desires, and their interests,

and the readjustment which must take place of the old nature to the new conditions and its own best interests under those conditions has no more than begun. So far nothing is very conspicuous except the conflict itself, and the selfishness which is partially a cause and partially a result thereof. We very much fear that the average working-man has not as yet learned to discriminate between desires the gratification of which are helpful and those the gratification of which are in part or in whole injurious, and the reason for self-denial is doubtless more frequently than anything else lack of opportunity. We see man arrayed against man and class arrayed against class—all of them struggling unscrupulously to compass their own ends. We see differences are arising between the extremes of wealth and the extremes of poverty; we see that an appalling amount of misery is being created because millions of weaklings are falling behind in the race and are being crushed almost to formlessness. Here and there, perhaps, the conflict has been temporarily exhausted and passed into the higher stage of co-operation; and doubtless mankind has already won from circumstances a certain permanence of condition and enlargement of leisure and opportunity; but these facts are not themselves sufficient to convince a sceptic that industrialism as such is making for morality. Is it not sufficient that industrialism, in order to obtain its own ends, will necessarily become progressively more human. The very conflict is decidedly more moral than the torpidity which preceded it; and conflict is always a method of eliciting permanent good from temporary evil. Wealth or machinery may and probably will injure a man or a society that has not earned it; or that has earned more than he or it is capable of taking care of. Then, indeed, it causes luxury, sloth and dissipation; and the wealth passes away with its unfortunate possessors. But the wealth that is ours at the present day is for the most part earned; and when earned, is not misused—unless it be true as some tell us that human nature is utterly lacking in staying power. That proposition we have no intention of discussing. It may be that the structure of our present society is built on sand; but even if our present society passes away as did that of Egypt and many others, civilization will endure. We assume that mankind contains within itself a high and powerful principle that is capable of realizing itself through all obstacles and gathering to itself all things. Our present industrial movement is the mightest effort yet made by this principle to subdue circumstances to its own uses, and turn the crude earth into a well-furnished house for the human race; and so, we believe that the industrial tendency must in the end make not only for morality, but for a morality, which is far from being merely utilitarian.

If it be true that the interests of morality are in the long run being served by industrial development, we may be very sure that the interests of art will not suffer. As a matter of fact those interests, which we take to be the interests of culture in general, need the very conditions which an industrial society tends to bring into existence. We have tried to show that such a society by its use of machinery tended to increase to its maximum the efficiency of human labor, while at the same time the moral nature of the process prevented the field of consumption from increasing in anything like the same proportion. Consequently a highly-developed industrial society must tend to become a society in which there is a great deal of leisure; and leisure, bringing with it as it does, comparative freedom from harassing cares, is in the long run a condition of culture. We all know that persevering and energetic natures are sometimes able to reach a high standard of artistic achievement in the face of harassing cares and occupying duties, but ordinary human nature would be unequal to such a strain. In the past, periods of rich artistic achievement have generally been periods of considerable material prosperity, and while both of these results were doubtless manifestations of the same spiritual leaven working among different kinds of people, yet the material prosperity did something to assist the artistic achievement and so, unless culture is always to remain the possession of a favored few among mankind, the freedom from sordid occupations which hitherto only these few have been able to obtain, must become the birthright of the many. It is true that our industrial development has not as yet done very much for art, and it would be very difficult to prove from any of the facts of our present conditions, that it was likely materially to assist the finer processes; indeed a sharp antagonism exists between the representations of wealth and those of culture. This antagonism, however, must be only superficial and temporary. We are ready to admit that our present society will not be renowned for what it has achieved in art and literature, because high attainment in spiritual expression needs a wholeness and serenity of nature which the modern man does not possess. Nevertheless, we believe that some consolation can be derived from the fact that whatever the quality of our present artistic production, its quantity is probably larger than that of any other time. The larger popularity of

art is evidence of wider interest, and even if this interest is not very intelligent, its existance is a fact that should not be ignored. It is, perhaps, the first indication of a truth which often needs preaching—the truth that democracy is not simply a political doctrine. Its ends are not obtained by universal suffrage, and a realization of the doctrine of equal rights and opportunities. Democracy in its widest application is simply the humanization of the human race ; and in order to be humanized we must first be measurably liberated from the pressure of external circumstances. When this liberation takes place not through any fortuitous combination of circumstances, but because it has been really earned, then we may be sure that it will be put to the best possible uses, and that the material accumulations will be exceeded by the spiritual growth.

But, it may be asked, what shall be done in the meanwhile? Shall we sit still and listen to the vulgar prating of them that can see nothing but good in the present stage of the process, and who laud machinery as an end in itself? We answer that such ignorance and error should be exposed on every possible occasion. If there is anything in the process which we have outlined, many, many years must pass before it can be consummated ; and during all these years people who can get beyond the prevailing standards should, and, of course, will do so. As long as machinery is devoted to serving interests of the poorer and baser sort, the process cannot obtain even a relative degree of permanence, because permanence is essentially derived from the subordination of circumstances to interests that represent not merely a phase of human nature, but also an abiding, developing, constituent element in our larger selves. But individuals may strive for permanence, and anticipate the final outcome. The error made by Walter Crane and too many other pseudo-moralists is to assume that culture can find an immediate home in the human race even as it finds an immediate home in a few exceptional individuals. But just as a high standard of culture demands that the individual live over again in epitome the history of mankind, so must he anticipate in his own person our educational future. Pending, however, the progressive elimination of arbitrariness and accident in human relations, the standards for the individual and for the people are very different. Of the individual we demand that he develop all the larger elements in his personality and meet his conditions fully and sturdily ; and we demand that he do this in the few score years that are his own. There is a sense in which humanity is a personality also—a personality which has reached a certain stage of development, and one that cannot be hurried on to the end all at once. The next step must come next. The relation of particular personalities to the general personality is complicated and responsible. On the one hand the individual's spiritual welfare demands that he separate himself from the mass, and from this point of view his worth is measured by the extent and completeness of this separation. Yet when separating himself from humanity he must in another sense keep in close contact with his fellow-men

> "Who sweats not with the flock will seek in vain
> To shed the words which are ripe fruit of sun."

Indeed we believe that the intimacy of the union is a condition of the vitality of the separation. Our ideas must be realizable ; but they must not be realizable in full. So far as they are not realizable, the individual is isolated and devoid of immediate result. He passes as a progressive moment in the history of mankind. But although thus swallowed up in the process he is realized and justified as the process gathers to fullness.

—*Editor.*

AMERICAN ARCHITECTURE.

Studies. By Montgomery Schuyler. With illustrations. pp. ix., 211. $2.50. *Harper & Bros.*

IF the object of architectural criticism is to educate the judgment and taste of the public, or of that portion of the public which is interested in works of architecture, how cordially ought we, in the still hopeless bewilderment of the public mind on these subjects, to welcome every honest and intelligent effort in this direction. Mr. Schuyler's present effort is unquestionably honest and in the main intelligent. He has a sufficient understanding of the difficulties which lie in the way of any prosperous solution of the intricate and novel problems which must engage the architect of to-day, and is not too much inclined to severity in considering his inevitable failures, while he has a warm word of appreciation for his occasional successes. His instinct for good architecture is generally true; he admires the really good things and condemns the bad. This is to say that he is a much more than ordinarily competent and trustworthy critic, at least as far as determining the merit of an architectural work is concerned.

But Mr. Schuyler is unfortunately troubled with a Point of View, and unfortunately again, this point of view is a moral one. It seems odd to see the "Lamp of Truth" which burned so brightly for a season a generation ago in the hands of Mr. Ruskin, lighted up once more in these later days, and brandished about by an American critic, lamenting at the end of the century the too early death of the Gothic revival. Mr. Schuyler in explaining his point of view to be the necessity of restoring that union of architecture with building, or rather that identity of the two which he believes to have been lost at the period of the Renaissance, makes use of a speech which he delivered last year at a banquet of the National Association of Builders in New York, in which he declared that—

"The real radical defect of modern architecture in general, if not of American architecture in particular, is the estrangement between architecture and building—between the poetry and the prose, so to speak, of the art of building, which can never be disjoined without injury to both. . . . If you were to scrape down to the face of the main wall of the buildings of these streets you would find that you had simply removed all the architecture, and that you had left the buildings as good as ever. . . .

"It is, I believe, historically true in the history of the world, with one conspicuous exception, that down to the Italian Renaissance, some four centuries ago, the architect was himself a builder. The exception is the classical period in Rome. . . . The Romans simply pierced their wall with arches and overlaid it with an envelope of the artistic expression of another construction which they coarsened in the process. According to some accounts they hired Greek decorators to overlay it with this architecture which had nothing to do with it, and there was the first illustration in all history of this difference between the art of architecture and the art of building. In every other country in the world the architect had been the builder. I think that is true down to the Italian Renaissance, and then building was really a lost art. There hadn't been anything really built in the fifteenth century, and they began to employ general artists, painters and sculptors and goldsmiths, to design their buildings, and these men had no models before them except this Grecian-Roman architecture of which I speak. These men reproduced that in their designs and left the builder to construct it the best way he could; and that I am told is a process which sometimes prevails in the present time. But before that everything had been a simple develop-

ment of the construction and the material of the building; and since that men have thought they perceived that architecture was one thing and building another, and they have gone on to design buildings without any sort of reference to the materials of which they were composed or the manner in which they were put together."

Now considering that an after-dinner speech is the last place in which one would look to find a carefully considered statement on a question of architectural history, we think it is to be regretted that Mr. Schuyler did not before adopting this as the central argument of his printed book, and as the best statement he could make of the views and principles which governed his serious architectural criticism, subject his speech to a more strict examination and revision. Had he done so, we feel sure he would have avoided some of the important errors into which he has fallen. Let us look a little at his several points.

First there is this old sarcasm of *architecture appliqué*. The Romans built their monuments and then "applied" the architecture; the engineers did the building; the Greek artists did the architecture. But this is to confound architecture with decoration. It is true, no doubt, that the Roman walls were built first and decorated afterwards with engaged orders. But what then? The architecture of the Pantheon, of the Baths of Caracalla, of the Basilica of Maxentius, consisted not only in the columns and entablatures with which the wall surfaces were adorned. The building was in itself a magnificent architectural conception, of which the grand effect lay in the constructive forms as truly as was the case in the Greek or Gothic buildings. No doubt the Roman was lacking in the æsthetic instinct of the Greek. But to say that he "built with no more thought of art than a modern railway engineer has in building a truss bridge," is to put rhetoric above the truth of history. And indeed, as a matter of fact, what is the peristyle of the Greek but "architecture appliqué," and if Mr. Schuyler's scraping process is to be carried out impartially, what will be left of the temple but the bare cella?

Next there is the surprising statement that at the period of the Renaissance in Italy, building was a lost art. "There hadn't been anything built in the fifteenth century." Now the Renaissance began early in the fifteenth century, and if at that period the art of building was lost, it must have been lost by the race of builders who preceded that movement. Mr. Schuyler does not claim that nothing was built in the fourteenth century. But let us look at the fifteenth. In Florence alone, that century saw the building of the great palaces of Pitti, Strozzi and Riccardi, the churches of San Lorenzo, San Spirito and Sant' Annunziata, the beautiful Cappella Pazzi, and the great Hospital of the Innocenti. But above all, the dome of the Cathedral, one of the most stupendous and difficult pieces of pure construction in existence, the work from beginning to end of Brunelleschi, was begun in 1420 and finished, with the exception of the lantern, in fifteen years. Such structures as the Spanocchi palace at Siena, the Bevilacqua at Bologna, the Piccolomini at Pienza, the Ca d'Oro and Ca Dario at Venice, the beautiful Communal palaces at Verona and Padua, and the great Hospital at Milan, are further examples taken at random of the sort of building which went on all over Italy (excepting in Rome) during this century when the art of building was lost.

Mr. Schuyler remarks that "they had to employ general artists, painters and sculptors and goldsmiths, to design their buildings." The inference is that these persons were makeshifts and uninstructed in the arts both of design and construction. But will Mr. Schuyler seriously maintain that the group of men which included such names as Bramante, Brunelleschi, Alberti, Michelozzi, Baccio Pintelli, Cronaca, and a score of others, all architects of the fifteenth century—or their successors of the sixteenth—Peruzzi, San Gallo, Sansovino, Vignola, Palladio, Fontana, and the rest—are to be spoken of in terms of disparagement, *de haut en bas*, as men "who thought that architecture was one thing and building another," and who "went on to design buildings without any sort of reference to the materials of which they were composed or the manner in which they were put together? The fact is that the architects of the Renaissance were, with the exception of the ancient Romans, the boldest and most skillful builders whom Italy has ever known. The history of the Lombard and Gothic periods is a history of continual disaster from crumbling piers and falling roofs, and of the churches of those times which remain to us, multitudes are kept from falling into instant ruin only by the iron rods which tie them together in all directions. The only race of builders with whom the "general artists" of the Renaissance need fear comparison is that of the great Gothic architects of the North, and notably the Freemasons who succeeded the monks of the Middle Ages.

We have lingered so long over this four-page introduction that we have little space left for the book itself. Nearly one-half of it is taken up by three chapters on "Queen Anne," the Vanderbilt houses and the Brooklyn Bridge, which were

written and published eight or ten years ago, and of which the subjects have in that time lost much of their interest. Most of the other half is given to a review of the architecture of Chicago, St. Paul and Minneapolis, written with a vivacity of style which makes it eminently readable. We are not concerned with the author's criticism of individual buildings, East or West, though we may observe in passing that the prevailing tone of it seems to indicate an ill-restrained fondness for chaffing the architects or patting them on the back, as the case may seem to require, to an extent and with a freedom which is open to objection in a serious work of criticism. But in spite of frequent crudities of statement and many wild and whirling words, his judgment is generally just and his criticism is generally sound His remarks on the failure of the Chicago architects to make use of the extraordinary opportunity offered them by the great fire, those on the "commercial palaces" of Boston and New York, and those on the Richardson mania which has been so deadly in its effects (temporary, we are now beginning to hope) on the design of the younger architects, seem to us especially judicious and wise. On the last subject indeed it was time that somebody should speak and speak plainly. Mr. Richardson's personal force and enthusiasm were so great and the success of his best work was so brilliant and telling, that it is no wonder that his obstinate mannerisms were so easily condoned, or that, as Mr. Schuyler says, his work "excited an admiration which if not inordinate was at least undiscriminating and misapplied," not only among the general public but, more disastrously, among the lighter-minded architects, who saw in his gigantic arches and stunted columns and rough-faced walls a short and easy road to favor and success. The result is little less than frightful. If, as must be admitted, the masculine vigor of Richardson did sometimes degenerate into coarseness and even to brutality, the work of his imitators rarely rises above that level; and the monstrous births all over the land bear witness to the force of the impression left by the great architect, and also to the danger which lies in the absence of all traditions and governing principles which marks the practice of the arts in this country.

In the chapter on the Brooklyn Bridge, Mr. Schuyler turns the Lamp of Truth full on that imposing structure, and finds it wanting, because the great piers do not express their purpose. "A drawing of one of the Towers without its cables would tell the spectator nothing; the structure itself will tell our New Zealander nothing of its uses." The conception is mechanical, not monumental, and he contrasts the bridge towers with the Cathedral towers of Amiens, Paris and Strasburg. We confess to some impatience with such a comparison, with such a test. The Brooklyn towers are ugly, not because they are not "sincere," but because they are the work of an engineer who made no pretensions to a knowledge of architectural composition, and who probably thought nothing about it. No such mass of masonry is fine by accident, and no accuracy in the expression of practical purpose would have helped the matter at all.

The paper on "An American Cathedral" disappoints the reader in telling him nothing of the project which seems now to be in a fair way to be carried out, of building a Cathedral of the first-class in the city of New York, but in discussing chiefly Mr. Richardson's unsuccessful design for the Albany competition. Mr. Schuyler has, however, some judicious remarks concerning the reasonableness of building a great Cathedral in New York, in which we seem to see a half acknowledged suspicion of its absurdity. Why not admit at once and frankly that the Cathedral is a mediæval monument, as the castle was, or the monastery; and that to go to work in cold blood at the close of the nineteenth century to build such a monument in New York, is as ridiculous as it would be to surround the city with a wall and moat. Mr. Schuyler says the proposed Cathedral will be the glorification of the "Lamp of Sacrifice." We say on the contrary that it will be the fruit not of devotion or sacrifice, but of ambition and pride, and so far from indicating a noble feeling for art, will but indicate the painful lack of it; for the true artist will recognize and acknowledge, with whatever regret, that the Gothic Cathedral, like the Greek Temple, is a thing of the past, and that though a pale counterfeit of it may be within the reach of the swollen fortunes of Wall Street, the real thing is beyond their power forever.

RAYMOND LEE.

CHAPTER VIII.

THE NUN OF EASTCHESTER.

THE gathering at the organist's house was an event which occurred annually in June. In great measure social intercourse in Eastchester was a matter of method and routine. There were, for instance, certain festivities which the Dean had established which were as strictly a part of the regular life of the town as the services in the Cathedral; so were the tea parties given by the Misses Huggins; the New Year's ball at the Oaks, where Lieutenant-Colonel Leo of the Yeomanry lived; the dinners of Stanislaus Perkins, Esq., J. P., and the children's party at Christmas time at Miss Batters' Select Establishment for Young Ladies. Smart Charley Bangs, who was studying law in London, said it was at these gatherings that the ennui of the town could be seen in a state of full activity; but, then, Eastchester, in the narrow sense in which we are speaking of it at present, had its opinion of Charley Bangs. In short, not to go too deeply into the matter, the organist's party was one of the regular events of the year which Eastchester expected and, in part, attended.

The Dean was present, of course—a broad-shouldered, authoritative, condescendingly pompous man, with a large face, heavy dark eyebrows and bushy side whiskers which only partly concealed his fat double chin. His voice was loud and his laugh, which existed chiefly as an attendant upon his own ponderous jokes, was still louder. No one could doubt

that the Dean considered the Dean a man of wit and parts. His wife was with him, a bony woman, addicted to poplin and shawls, who had grown spiritually pallid in her husband's shadow. The two Misses Huggins, also, were present. They were emphatically the old maids of Eastchester, the acknowledged representatives of virtuous spinsterhood. Miss Harriet Huggins, the younger of the two, was very flat in person and very dowdy in dress. Her laughter was always in a state of unstable equilibrium. It ran before her wherever she went. She frankly accepted the state to which Heaven had consigned her, and thereupon had been blessed with the compensating gift which Providence apparently bestows upon spinsters who are at the same time forty and pleasant—a hand of rare lightness and cunning in the pastry line. The fame of her cakes was as wide as Eastchester itself. Her jams were unsuccessfully emulated in every household, and her jellies and custards were regarded as something in the nature of secret preparations. There was a perpetual demand for her talent. No party was ever given in the preparations for which Harriet Huggins did not play a part. Her activity extended also in another direction. Her ability as a nurse was quite as marked as her capacity as a pastry cook. Whenever there were additions to her friends' families—and dear how frequent they were—she always presided at the mysteries. Bangs declared she was the goddess of maternal convalescence omitted by the Greeks in their enumeration of Olympus.

Miss Sarah Huggins, her sister, was two years her senior. Far from accepting her unrelated condition to mankind, she persistently protested against it. With her, marriage was still a desperate possibility. People said she coaxed the situation by artificial devices. Those competent to judge such matters declared that the size of her waist was unnatural—timider spinsters added "most unbecoming in one of her age." She dressed nattily, wore small boots, which may have been the reason why her gowns were so perceptibly shorter than her sister's. The subject "Men" in all its many aspects and ramifications interested her intensely. She read novels assiduously for the light they threw upon

the progress and development of love affairs. More than once she had even forced little John Stimson Oldboys, who was very timid and quite bald and unconquerably nervous in women's society, to discuss the nature of Love, and when he stammeringly protested his ignorance she rapped his knuckles playfully declaring she was afraid he was a sly fellow. In short, we may as well confess it, her lines were laid among all the unmarriageable men in Eastchester, and no angler ever watched for a bite as eagerly as she did.

It was into this coterie that Ralph Winter dropped on the evening of his arrival at Eastchester. Good Mrs. Carrol, whose motherly heart Ralph had completely captured, whispered to her guests an elaborate and largely unveracious history, (though I am sure the old lady believed every word of it) concerning her visitor. After the manner of such tales it entirely lacked that proportion which after all is the essence of veracity. Whispered information stirs the imagination in a way that no outspoken word can, and Mrs. Carrol's sly corner confidences about the great wealth of Ralph's parents, the young man's travels, rare musical ability and triumphs in two continents, raised the expectation of the party to the point of self-delusion.

Mrs. Carrol was particularly explicit with Marian Pilgrim concerning Ralph. In doing so the old lady probably had no particular ulterior intent. Mrs. Carrol was too simple a soul to be a busy match-maker, but she was a woman, with woman's constant unconscious pressure toward the emotional side of life. Romance is ever lord of woman's dominion, and to her heart, thank Heaven, has been consigned the keeping of an imperishable enchantment for the world. What is there in our friend Stubbs, my dear sir, but two hundred pounds of dull corpulency and a nature that rises to its highest power before a dish of sweetbreads, a steak chateaubriand and a bottle of Burgundy. Yet, despite his bald head, you know, he is the hero of a little woman's life. Hard as it may be to believe, she sees a light in those eyes quite invisible to us, and hears music in that lack-breath voice to which we are dull. An hour of his selfish existence given to her will sweeten days and days of sacrifice.

When Ralph entered the organist's drawing-room and was introduced to the people present, he had no idea of how stimulated the curiosity of everybody concerning him had been; consequently the attention he received pleased him greatly, for it seemed that he had fallen into very agreeable and sympathetic company. He impressed the women favorably at once, for Ralph was of the sort of men whom all women easily like and consequently few ever love. No, madam, your antipathy is another woman's attraction. You can surely measure the intensity of your neighbor's feelings in one direction by your own in another. Thousands of good, bad and indifferent fellows are married every twelve months, because half marriageable womankind wouldn't have them at any price. Why, Miss Brougham there is infatuated with dwarfs, and Miss Cheesely dotes on Harry Chubbs, that great inanity, than wed whom you would rather die. She admires muscle. Even that lisp of his and his second-hand jokes and everlasting talk about athletics she has told me in a confidence which, perhaps, I ought not to betray "are perfectly adorable." But these facts are part of that deep philosophy of life without which, histories like this one of ours could not be written, and Ralph's disposition was entirely too much engaged with itself to pay any heed to so impersonal a thing as philosophy. He believed that every surface indication of interest contained something of the abandon of a woman's heart, and that women absorb love with sentiment. What nonsense! Why, De Gourka, the Governor of Siberia, assured me that frequently he has won women's love with the knout. I believe that does not often occur out of Russia, but I confess that probably no history of love would be quite complete without a chapter on the influence of brutality over the affections.

Ralph did not so favorably impress the men; this may have been because he *did* so favorably impress the women. He rather diminished for the time being the importance of the Dean, and with the partial eclipse of that dignitary there was a total eclipse of all his satellites. Of course at an early hour the conversation took the direction of America, and naturally passed into interrogatories which

no one was capable of dealing with but Ralph. The Dean endeavored to acquire an authoritative position by establishing Cincinnati on "the great lakes," a town to which he said an old parishioner of his had emigrated ten years before.

"And it was so funny," chimed in the Dean's wife. "Do you know he put 'O' after his address in the three letters he sent to the Dean." With her, her husband was always "the Dean."

Bangs said he would like to go to "the States" because it was "such a jolly place to shoot game, and that sort of thing." Miss Sarah Huggins wanted to see an Indian chief, she thought they looked so manly, a wish which shocked Miss Batters, who, as principal of a select establishment for young ladies, could not overlook the insufficiency of the Indian's attire. The Dean, then, attacked the problem from a theological position. He had always deeply regretted, he said, the indifference of the United States government to the religious welfare of its heathen subjects. This emboldened the Rev. Arthur Kneesman, a young curate still in a pale state of sanctity, to simper that he had been given to understand that infidelity was woefully rampant among all classes in America. In his estimation, it pointed clearly to the need for an established Church.

Ralph was a bad conversationist, because the least verbal irritation or opposition of ideas angered him inwardly and made him objectionably earnest. In this case, the very superior air of the young curate's simper annoyed him. He asked sternly what was meant by "infidelity," and upon receiving from the curate a hesitating but most orthodox and limited answer, declared that spiritual wisdom or faith, as with worldly wisdom or experience, was possessed by few in any fullness until they were forty. He didn't believe, he continued, that any man ever found God in the Bible. Only those who had sinned and suffered passed into the Presence, and then Life had taught them a creed that was deeper than the Athanasian.

The curate pronounced such views "shocking," but the Dean, as the voice of Authority and a man of over forty,

interposed judiciously that while there was "no doubt a deal of truth in what Mr. Winter had said, the necessity for Faith pure and simple to salvation, quite apart from any belief derived from experience, could not be disallowed."

"I am sure Mr. Winter's meaning is not as extreme as his words," said Marian Pilgrim, who had listened to the conversation intently.

"Indeed it is, Miss Pilgrim," said Ralph, positively.

"Doesn't that support my statement?" asked the curate, appealing to the party.

Where the argument might have led to it is hard to say, but Mrs. Carrol, observing that matters were coming to close quarters, broke in with a request for Mr. Winter to "play something." Everybody save the curate supported the desire loudly, and Ralph sat down to the piano with perturbed feelings to animate his playing. He attacked the Dean and consigned the curate to the purgatory of fools with an intensity of musical expression that astonished the little gathering. They had never before heard the piano used as a musical instrument, and Ralph's fingers really had acquired that nameless conjury over the keys which is the gift of mastery.

"Splendid! Splendid!" cried the Dean loudly, as Ralph arose from the piano. "Bravo!" And the company applauded mildly and fluttered about the room, rather relieved, if the truth may be told, from the tension under which Ralph's playing had placed them.

"By George, Miss Pilgrim," whispered Charley Bangs, "that American *can* play. You were impressed I could see. It may be classical and all that sort of thing, but I must say I don't admire music with so many scales in it. What was it?"

"The last piece Mr. Winter played was something of Liszt's, I think," said Marian, smiling.

"Ah, yes, Miss Marian, you're up in that sort of thing, I know."

After leaving the piano, Ralph strolled into the garden, at first with Mrs. Carrol and Miss Batters, but, after a while the two ladies were called to look after the refreshments and he was left with the elder Miss Huggins.

"I was just saying to Mrs. Carrol," said Ralph, striving to get aback of some congenial topic, "how much I deplore that there are no old places like Eastchester in my country."

"But no doubt you have a great many things that we have not. I have always heard that America is such a *wonderful* country," said the spinster, good-naturedly.

"A wonderful country, yes," said Ralph, "but charming in so little. We believe, at home, you know, that the salvation of the world has been consigned to our keeping, but, for one, I'd rather not be in the new Ark, if it is to be of American manufacture."

Miss Huggins giggled. "You were not talking in that strain to the Dean," she said, playfully.

"No, for he annoyed me, or rather that curate annoyed me, Mr., I forget his name."

"Oh, Mr. Kneesman. He is Miss Pilgrim's curate. Don't you think he has a saintly face? He has such a sweet voice—but you should see him in his surplice."

"Miss Pilgrim's curate?" asked Ralph.

"He officiates at her workingmen's chapel in Smeltham."

"Her chapel?" asked Ralph.

"Ah! It is plain you are quite a stranger here, Mr. Winter, for everybody who has been any time in Eastchester knows all about Marian. 'Our Marian,' we call her."

And then a long and gushing tale was unfolded to Ralph about Miss Pilgrim, not altogether without interest to him, because he could associate it with a pretty face. The substance of what Ralph learned was that Miss Pilgrim lived very near to the organist's house, in a small modern villa which her father had built in the beautiful grounds which formerly belonged to old Mr. Groat, who, the reader may remember, died many years ago without a will, possessed of very great wealth. Under such circumstances the old man's demise was regarded as something of a personal loss by everybody in the town—the possibilities were so numerous and attractive. Mr. Pilgrim himself was well off. He lived very quietly, and rumor had it he devoted his time impartially between two all-absorbing occupations: eating curry and writing a great history about "one of the wars," Miss Huggins didn't know which, they

were so many. To eat curry was almost as remarkable a feat, she thought, as to swallow swords after the manner of Jack Bareback in the circus, and as to the history, everybody was convinced of the greatness of the work, because Mr. Pilgrim said it was a great work, and that when finished "it would upset a great many people's notions."

It is always interesting to discover the sources of fame, for not unusually, like great rivers, it rises in little springs and grows great by merely traveling onward and absorbing tributaries.

Pilgrim called his place "The Bungalow," and lived apart there with his "great work," and his Indian man-servant, named Chutney, who cooked his "messes." The remainder of the house was given over completely to his daughter, who made it chiefly an adjunct to the charities and schools in which she was interested.

"She spends nearly all her time and her money, too," said Miss Huggins, "in her schools in Smeltham. You must surely run over to see them, Mr. Winter; there are nearly two hundred children in them now."

"She seems to be a very interesting girl," said Ralph, shortly, and we may as well confess it, the reserve betokened a large reticence on h s part.

"Everybody loves Marian, she is so different from our other girls. Do you know, Mr. Winter, she puzzles me at times. She says so little and does so much. I can't understand a girl being so purposeful, can you, Mr. Winter?"

"Of course I don't know Miss Pilgrim," said Ralph. "but I like to see a girl, as the saying is, with her mind made up, guided by some inner active principle; always providing it doesn't harden her or render her less sympathetic and susceptible to the softer influences of life. In sharpening the outlines of things nothing of the color must be lost."

Ralph delighted in adopting this sort of tone; there was a good deal of the larger kind of schoolmaster—the moralist—in him.

"Oh, no! certainly not," said the spinster, positively. She didn't quite understand Ralph, but felt that his remarks

called for something emphatic. "But I didn't think you men cared for positive women."

"I should judge that Miss Pilgrim is a really romantic girl," said Ralph, throwing out a line for information.

"That's what Mrs. Carrol says. She declares Marian doesn't think; she dreams."

"That's woman's best way always," said Ralph. "Life's a very colorless affair with her when she is out of dreamland."

"How foolish, Mr. Winter," exclaimed the spinster, laughing. "Why, here's Marian and Mrs. Carrol. Marian, dear, what do you think Mr. Winter has just been saying? He says we women live—what was it, Mr. Winter; please repeat it?"

"I was saying," said Ralph, a trifle confused, "that women are really happy only when they are in dreamland. What do you think, Miss Pilgrim?"

Marian's arm was around Mrs. Carrol. In the faint evening light Ralph could just see her eyes fixed on him for a moment, then turning to Mrs. Carrol, she asked, softly:

"Have you or I ever been in dreamland?"

"I believe you are always there, Marian," said the old lady, tenderly.

The girl kissed her and drew her closer to her.

"Dear Mrs. Carrol, that is part of your dreamland. Mr. Winter must be right."

"I am sure *I* never dream," said the spinster.

"Ah, Sarah," said Mrs. Carrol, gently, "we have to acquire the faculty when we're young. Eh, Mr. Winter?"

Before Ralph could reply, Marian said to the old lady:

"I must be going now. You won't mind, will you; I promised papa that I would surely return before nine o'clock."

"I wish you didn't have to go, Marian. Can't you remain a little longer and Mr. Winter will play again for us. Won't you, Mr. Winter?"

"Certainly, if it will please you," said Ralph, and more than half his answer was addressed to Marian.

"I would like to stay. I have never heard anyone play as you do, Mr. Winter," said the girl, simply. "I hope

She paused with a little confusion and turned to Mrs. Carrol. "I would stay if I hadn't promised."

"I know, dear. It is all right. I won't try to keep you. Mr. Winter will see you home I am sure."

Marian protested against the suggestion, but Ralph was too willing, for the protest to avail anything.

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Beyond the organist's gate the Cathedral rose in full view before Marian and Ralph as they turned into the Close from which ran High street. Rising against the moonlit sky, the dark pile was like a huge black shadow rather than a material thing. The moon was yet hidden below the high roof, so that our two friends saw the outline of the building, towers and spire and buttresses, faintly edged with silver light as an aureole. The night seemed to be slumbering in dreams. There was a witchery in the air as though fairyland was opening and spreading its enchantments over the earth.

"How beautiful! How beautiful! Oh, oh!" cried Ralph in crescendo, with enthusiasm that was in large part real enough, though it did not lack that certain fictitious element of exaggeration which was never absent very far from Ralph's topmost moods. "Why have we not to-day the art of those old Gothic builders. They so wrought stone upon stone that the merely material became spiritual. Of course, you have read Ruskin, Miss Pilgrim?"

"I have read very little of his," replied Marian, shortly, who womanlike was feeling her way cautiously with her new acquaintance.

"Do you know, probably I should not be here now but for Ruskin," said Ralph.

The girl's curiosity was aroused.

"How so, Mr. Winter?"

"When I left college and determined not to join the church Do I surprise you? Yes, I would have joined the church could I have done so honestly, but" Ralph paused.

"But what? Mr. Winter excuse me; perhaps I ought not to ask?"

"No, no!" said Ralph, who was ready enough to talk

of himself. "My mother's desire was that I should be a clergyman in the Episcopal Church, that is the Church of England as we have it in America. I studied for some time with that in view, and, so far as I could then see, my belief in the tenets of the Christian faith was real and firm. But the day of trial came and—well, proved it to be hollow enough."

"And you gave up your intention?"

"And I gave up my intention. What else could I do?"

"Do you always give up at once when you encounter difficulty?"

There was a sting in this question so directly and simply asked. Ralph felt the conversation instantly lifted above mere passing chat.

"No, indeed," he replied, stoutly; "I think not. But mere determination will not bring back belief, Miss Pilgrim. Something had not been taken from me, but destroyed, utterly destroyed; how completely I realize only when I endeavor to return, as sometimes I do, to my old position. I might as well try to get back into yesterday." The vehemence of these last words startled the girl.

"But, of course, you do believe something?" she asked, kindly.

"Nothing," said Ralph, who was in the mood to take the extremest position possible. "Nothing."

"Oh, Mr. Winter, you cannot mean that." The girl's pious mind was alarmed. "You believe in God?"

"The God of the Bible? No, Miss Pilgrim; I do not, I cannot, nor have I yet reached any other god."

"You do not believe in God?" she said, slowly groping a way among strange facts. "Nor in Jesus Christ?"

"No; much as I revere the Nazarene's character and teaching."

"Nor in the soul's immortality?"

"No; nor in that."

"Oh, Mr. Winter." Ralph could see his companion was trying to scan his face through the darkness. The depth of the reproach in the utterance of his name and the pity it contained was not unpleasant to Ralph.

"Miss Pilgrim, I ought not to speak to you of these

things. Your belief is so much worthier and, in a certain sense, surely so much truer than my unbelief. I have pained you?"

"Me? No, no! It is not that. I do not understand you."

For a space the two pursued their way in silence. Ralph was annoyed with himself for having spoken so freely. Marian had said strictly what was so; she did not understand. She was dumbfounded, for her own belief was so complete within its own narrow limits that it was well-nigh impossible for her to comprehend anything beyond it. Ignorance of God she could indeed understand, for the Rev. William Goodhue, who had labored for so many years as missionary among the natives of the Guano Archipelago, had told her when she give him the last check for the "good cause," of how woefully unenlightened those ferocious heathen were; how they worshiped their totem Jam in the dense forests with indescribable orgies, smearing their bodies with a pomade made chiefly, according to the pious missionary's analysis, of the blood and the marrow of their enemies. But Ralph was not a heathen, he wore clothes and was civilized, and it seemed to her a stupendously unnatural fact that he did not believe very much as she did and as everybody else did whom she had ever known. She shuddered as she thought of what Ralph had said. It was a soul pronouncing its own damnation. What could she say to this man? A minute before he was to her but a stranger, who had momentarily impressed her by his playing and by his personality. Now, her interest in him was made of stronger stuff. But before her thoughts had assumed any definite position she found herself at her own door. Ralph had bade her good night before she could speak.

"Mr. Winter," she said, hurriedly, "next Wednesday I shall have a little party here. Will you let me expect to see you? I shall be very glad if you will come."

Ralph accepted the invitation readily.

On the way back to the organist's the words "I shall be very glad if you will come" echoed and re-echoed in Ralph's ears with a pleasant sound, for he invariably made much of such speeches; but, on the whole, the events of the evening

left him with an uneasy feeling of dissatisfaction. The inharmonious element in his nature predominated.

"Bah," he said, "why don't I take people and things as I find them?" and he was discouraged and uncomfortable.

Many people have said that in Marian Pilgrim, at the period of her life with which we are now concerned, one could witness a very subtle and delightful blending of the child—the child's simplicity, frankness, ingenuousness—and the maturer woman whose predominant characteristic was a quiet, steadfast seriousness. Nature, that great, very partial mother of ours, has her favorites upon whom she lavishes moral endowments as upon other of her children she lavishes physical beauty or well-being, or other gifts. Certainly she had bestowed upon this quiet, brown-eyed little nun of Eastchester, a marvellous moral warmth and graciousness—let us say in a word, the beauty of righteousness, which, Heaven helps us poorer beings, is a thing so different from that sleek broad-cloth grace acquired with hymn in the meeting-house, or from the spiritual firmness, won by some very few of us, in the fierce struggle with our own weaknesses and with the army of the world's desires. With her, belief was not a matter which she could possibly view apart from her own intimate self. It was not the final insistence of experience as it is with some of us, nor the voice of authority, as with others. It was not an acquisition at all, any more than is perfume with the flowers. As Heaven has its heroes and messengers on earth, so, perhaps, it has its rare unconscious witnesses, to be gentle lights among men, bearing not the word of Faith, which it is so hard to comprehend, but the spirit and essence thereof.

"Little credit for such faith," would the Dean say in his curt, positive way. True indeed! little credit to such. The Dean is a practical man, and like practical fellows is given to cutting his wisdom into pieces, this bit to be placed here, and that bit there. So unlike, in this respect, his friend, the Rev. John Fargus, who never could discover a beginning or an end to wisdom—for wisdom with him was a line between two infinitely separated points—or any statement, though broad as man could make it, that was sufficiently wide to cover the smallest fact in life. Little credit indeed, good Dean; and

what then are we to say of our Judgments? Is it possible to rightly estimate conduct if we recognize that character is an endowment as well as an acquisition. Do we not judge people as though all started in the race on the same footing? "William Slough," says the Law sternly, (poor Devil it is the first time in years anyone has addressed you by your Christian name, your companions preferring your alias, Pug-nose Slough), "an intelligent jury of your fellow-countrymen have declared you guilty of a crime which makes you a disgrace to mankind (righteous mankind !), etc., etc., etc.," the peroration and point of which is so many years of penal servitude. William Slough is then hustled off out of sight of human eyes to the influence of stony walls and hearts (good enough for him !) almost as hard. The Law recovers from its indignation, wipes its gold spectacles, goes home with unimpaired appetite to dine well in its comfortable home ; while Society over its breakfast the next morning rejoices that Justice has been done, thanking God that it is not as other men are. Of course only a weak sentimentality questions the eminent rightness of all this. Is not the eternal relationship between William Slough, the Law and Society therein recognizeds? The first thus get his deserts, the second performs its duty, the third is protected. Admirable, and withal how simple ! Could Heaven do better? What need of the great final court of appeal, with its awful day of Judgment? Indeed, what need is there? Can it be, William Slough, that Omniscience will consider defects of birth and deficiencies of education? Your coarse soul has no hope, I know, that perhaps Justice there may not be hardened into a code, but instead may flow from the great human heart of Christ. Give me thy hand, William Slough ; you and I, we need equally the same mercy, not the same Law. What may pardon thee may not save me from everlasting condemnation, for pug-noses I notice do not get on to the bench, nor the broad judicial brow into the squalid haunts of crime as but dear me, what an inconsequential wandering, sermoning habit a pen may acquire. We were speaking of Marian Pilgrim.

It is scarcely necessary to point out how very different Ralph Winter's character was from hers. The indirect, the

self-conscious, the morbid, predominated in his nature, and, as with all sentimental people, there was an element of the false and unreal in his moods. Some souls defy the gods, and others there are that serve the gods. I know not which is the greater of the two. Ralph, certainly, was incapable either of defiance or of service. His nature was too strong for himself, and as with an overpowerful brain in a feeble body, the result was weakness. His strong sympathy, too, kept him eternally wavering; he was swayed by every new influence, intellectual and emotional, but the impetus lasted scarcely beyond the moment of contact. As we have seen, the result of his conversation with Marian Pilgrim was discomfit. He felt he had made a poor impression upon her. "I wonder what she thinks of me?" he asked himself, and he could not bring the answer to flatter him.

The direction of Marian's thoughts were away from herself towards him, striving for comprehension. A certain charity of religion interested her in him.

On her way upstairs, after leaving Ralph, she turned into her father's room. The historian, clothed in an Oriental-looking dressing-gown and smoking-cap, was busy with his great history. He dropped his pen, and as she took a seat on a little footstool by his side and rested her head against his arm, he brushed back the loose hair from her forehead, and lifting up her face to his, leaned down and kissed her.

"You are getting to be very like your mother, Marian, more beautiful every day. No, let me hold you so. Your face upturned like that sometimes looks out at me from the writing paper."

Now this little speech *did* please Marian.

"What! looking at you out of those battles, father?" she asked, shyly.

I am sure the woman was in Eve, even in the days of innocence in Eden.

To be continued.

(WHOLE No. 6.)
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"And the worst is that all the thinking in the world doesn't bring us to Thought; we must be right by nature, so that good thoughts may come before us like free children of God, and cry "Here we are."—GOETHE.

OCTOBER-DECEMBER, 1892.

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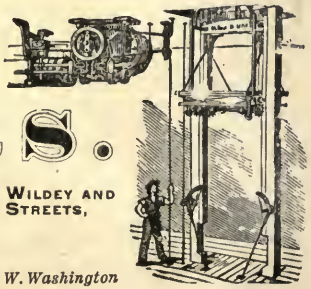
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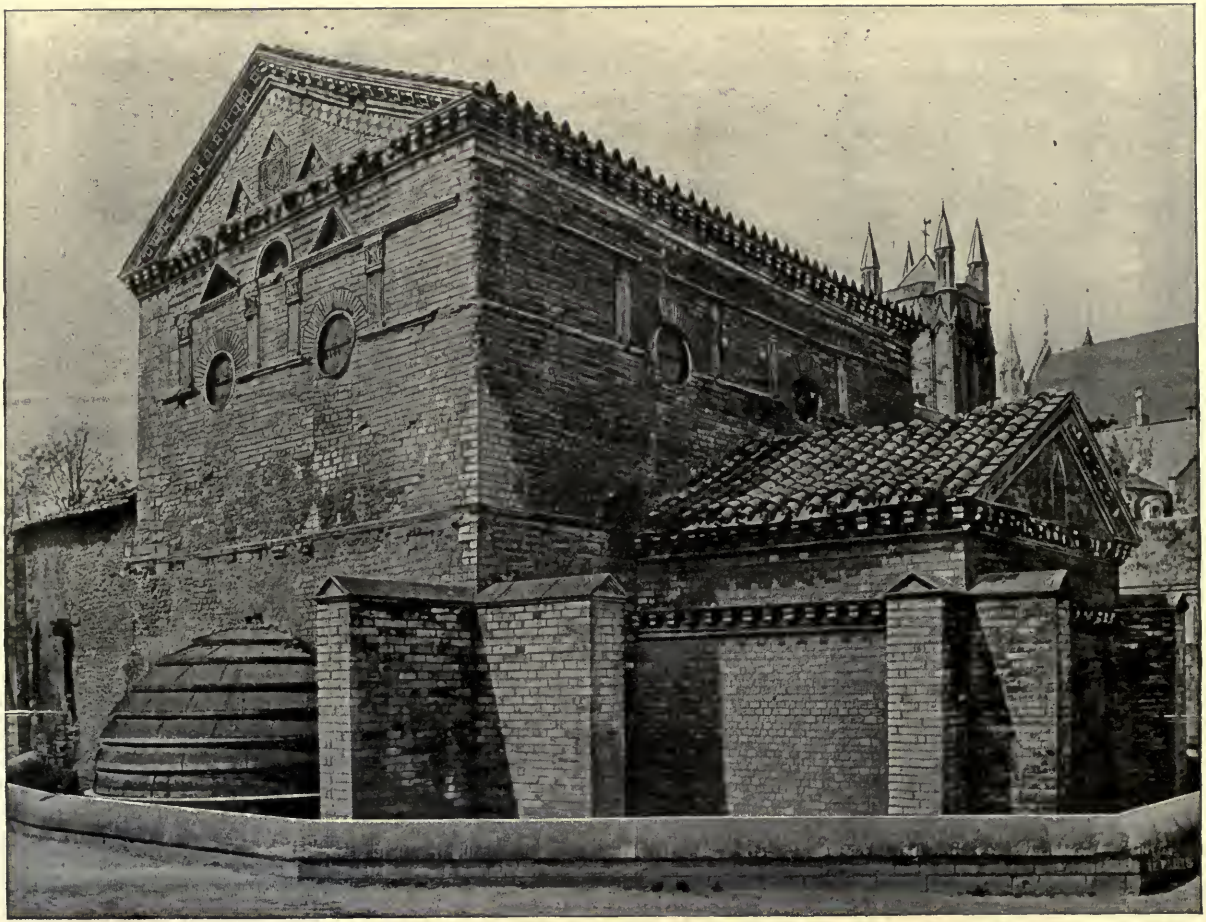
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FRENCH CATHEDRALS.

PART I.

INTRODUCTORY.

I.

IT was at the table d'hôte at Chartres. There was the usual company that gathers at the commercial dining tables of the smaller French cities. The only English speaking guests besides myself were a lady and gentleman busily engaged in discussing the wondrous cathedral, oblivious of the fact that one was present who understood what they were saying. Presently, some new comers came in, speaking in that tongue too little heard in French cathedral towns — English. Their compatriots looked at them in amazement. "Fancy," exclaimed the gentleman, "they speak English."

The surprise so frankly expressed is the same that every visitor to the great churches of France experiences when he realizes the amazing beauty and exquisite art in these too much neglected buildings. Americans and English alike are to a certain extent permeated with the idea that there is no architecture out of England as good as that within it. The average tourist from either country is consumed with amazement when it is intimated there are finer and grander cathedrals in France than in England, and the person bold enough to make such a statement runs the risk of being looked upon as most singularly misinformed indeed.

Notre Dame alone, of the great churches of France, enjoys a world-wide celebrity and is seen of all men, but only because it is in the one and only Paris. Other churches, as great monuments of art, with histories scarcely less momentous, are ignored altogether by the vast army of sightseers who yearly precipitate themselves upon Europe in search of the rare and the beautiful. Students of architecture need not be told of the beauties of French cathedrals. Notre Dame, Laon, Soissons, Reims, Chartres, Senlis, Sens, Bourges, Tours, Troyes, Noyon, Le Mans, Angoulême, Angers, Coutances, Rouen, Séez, Bayeux, Amiens, Beauvais, are names as familiar as Canterbury, Lincoln, York, Ely, Peterborough, Durham, Winchester, Salisbury, Wells, Gloucester, Worcester, Lichfield, Norwich, Rochester, Oxford, Westminster Abbey. But apart from those who take a studious interest in the subject the great achievements of French cathedral

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EGLISE SAINT-ETIENNE, BEAUVAIS.

architecture are a sealed book even to the most indefatigable of European travelers.

Within the boundaries of modern France, no less than one hundred and fifty cities have been the seats of bishops, each of whom had his cathedral. But there are not now as many cathedrals in France. Fourteen sees were united, forming now but seven. A number of others date from modern times, and have cathedrals of little architectural interest. The four bishoprics of Savoy have but lately come under French jurisdiction, and may, therefore, be omitted from the list of actual French churches. But even these reductions leave a very large number of cathedrals, though unfortunately they are not all of the same interest. Perhaps a score of these churches are known to general readers; by far the larger part are strange names of strange places, sometimes within easy reach of Paris, sometimes beyond the reach of railroads. It goes without saying, there is ample material for exploration and adventure here, and in fact it has only been within a very few years that the River Saône has been explored from the Rhône to its source, by a company of English and American travelers. It is a significant commentary on the propensities of the average tourist that hundreds of thousands of people traverse Europe each year, are thoroughly satisfied they have seen everything worth seeing, left unexplored no nook, left hidden no treasure, left unvisited no single point of interest, and are wearied with the "beaten tracks" of foreign travel, while whole rivers are unknown and three-fourths of the cathedrals of a thoroughly accessible and most delightful country never so much as glanced at. Fortunately there are indications that this state of affairs is passing away; it cannot go too quickly, nor should the great beauties of the French cathedrals longer remain unknown to the reading or traveling public of America.

II.

It is unnecessary to draw a comparison between the cathedrals of France and the cathedrals of England. The English churches are of England English, those of France French. Of two different people they represent two different civilizations. The motives that inspired the one were not the motives that inspired the other. Architectural forms were different, though similar. And so foreign cathedrals need not be considered in a study which has for its subject the cathedrals of France. Foreign parts borrowed very much more from France than they returned to it. Gothic architecture reached its highest point of perfection in the Ile de France, which, in the thirteenth century, was an architectural centre, a school of art and a storehouse of knowledge of building and building craft scarce surpassed in the history of civilization. The Gothic churches of England and of Germany are more illuminated by the study of French cathedrals than the French churches benefited by a comparison with them.

To understand the architecture of the cathedrals it is necessary to go back a bit to the time prior to the cathedral building age. The cathedral is simply the bishop's church, and though usage has to a certain extent limited it to the mediæval and modern building, the basilica was frequently as entirely a cathedral as the later edifice. Whatever may have been the primitive form of the cathedral, the transition from the early basilica to the cathedral is well marked and readily traced. The Christian church apparently passed from the private room in the private house to the private basilica attached to many Roman houses for oratorical purposes, and which was sufficiently developed to serve as the germ of subsequent structures. The early Roman basilica bore little resemblance to the Gothic cathedral in appearance or in construction, but in plan the cathedral is simply an extension and modification of its predecessor. The basilican plan was a T, that of the cathedral a cross. In the basilica the apse was applied immediately behind the transepts, which were short or absent altogether. The altar stood under a canopy on the chord of the apse, the semi-circular recess of which was utilized for the seats of the

bishop and higher clergy. Before the apse, stretching into the nave, was the choir, bounded by low walls, with an ambon or reading desk on either side. The altar, the choir, the seats for the clergy, the reading desks or pulpits comprised the essential internal parts of the church.

Admirably suited as the basilicas were to the ritual of the early church, they were most uninteresting architecturally. The low exteriors, devoid of decorative features, inclosed a nave and two aisles, though double aisles were included in some of the larger buildings. Rows of columns supported the clearstory of the nave, which was lighted by plain windows. Mosaic was the chief decorative art employed; it was lavishly used and formed a wonderfully effective and brilliant decoration. A single tower, round, and of which the churches at Ravenna preserve the best type, formed the only conspicuous external feature. The church was prefaced by a large court or atrium, and by a porch; sometimes the atrium was omitted altogether, occasionally the porch or narthex was internal instead of external.

In studying the French cathedrals or, in truth, any group of cathedrals, it is well to keep in mind the primitive type of the Christian church, since the later forms are but the amplification of the earlier, and the reasons which underly the construction of the primitive edifice illustrate and explain the reasons which produced the development of the more complex. In studying any phase of Christian architecture it is absolutely necessary to remember the Christian ideas underlying them. They were built for Christian purposes, consecrated to Christian usages. Christian ritual suggested certain architectural ideas; Christian customs necessitated certain parts. It is true enough that the cathedrals are splendid studies in architectural art and evolution, but it is also true—though very generally overlooked in architectural text-books—that they are equally noteworthy as examples of Christian thought and ideas.

Architecture being an idea, it follows that, in order to understand any phase of it, the ideas which brought it into existence must be thoroughly comprehended. The Christian principles and ceremonies practised by the Church were the chief motives in determining the form and disposition of the basilica. In reality, however, it was far from expressing the ulterior ideal of Christianity in architecture. The accomplishment of this task was reserved for the builders of the mediæval cathedrals, and enormous as are the structural differences between the basilicas and the cathedrals, their difference in expressing the relative development of Christianity is not less marked. The low and mean exteriors of the early Christian churches, which the small tower scarcely made conspicuous, were thoroughly typical of the incipient stages of Christianity. If the Church realized its power over men it was not yet ready to express it in its buildings. In the cathedral no such hesitancy is exhibited. It was the largest building in the city; its massive walls, ornamented with two, four, six, seven or nine towers—if we take the original intentions of the builders indicated in the ground plans—rose high above every surrounding building. The transepts were strongly marked and were provided with fronts scarcely less majestic and imposing than the great western front itself. The choir was now wholly beyond the transepts in an arm of its own, making the plan markedly cruciform; in place of the shallow apse there was a circlet of chapels forming an unparalleled architectural perspective, and sometimes covering, with the choir, as in the cathedral of Le Mans, a greater area than was occupied by the nave.

Within, the primitive programme of essential parts was still adhered to, but a multitude of decorative arts now took the place of the mosaic of the basilica. Carving, painting on glass, wall painting, rich work in metals and in precious stones and enamels and elaborate tapestries, every art of an artistic age was pressed into the service of religion, and helped to illustrate the truths of Christianity. The sculptures and glass paintings especially, in which tales of Christian heroism and

doctrinal parables were set forth in a pictorial language all could understand, helped to make the cathedral the most Christian of Christian edifices. Christianity had long since passed the experimental stage; the civilization of Europe was Christian in a more thorough way than it had been Roman. The missionary enterprise and pious fervor of the monks had carried both a common religion and a common architecture to all parts of Europe.

III.

Few chapters of architectural history are as fascinating as that relating to the monks. In modern times it is the fashion to look upon the monks as the most unprogressive product of civilization; the art work they produced is a sufficient commentary upon such criticism. The monks and the lay builders, the latter an outgrowth of the former, did, between them, the bulk of the building of the Middle Ages. This condensation, as it were, of the building interests, hastened the growth of one style of architecture, which was further strengthened by the constant movements of the master builders and workmen from one point to another, thus widely distributing the knowledge of a single form of work. Gothic architecture did not fail to assume national character in different countries, but its modifications were variations on one model, not the evolution of distinct types.

The English cathedrals are better types of monastic buildings than are the French. The typical English cathedral was a monastic church; the typical French cathedral was a secular church, a monument built by the secular clergy as an offset to the immense popularity of the monks among the people, a popularity too well illustrated for them in the magnificent churches and monasteries thickly scattered over Europe. For although cathedrals never lost their importance ecclesiastically as seats of bishops, the rise of the monks was so rapid, especially the Cistercians in the eleventh century, who came into existence about the time of the revival of building, that the abbey churches speedily surpassed the cathedrals in architectural grandeur. As far back as the time of Charlemagne and his immediate successors the monastic establishments in France had been very numerous and some of the most famous houses had their origin at this period. In the eleventh century monastic fervor took a fresh lease of life. Mont S. Michel, S. Georges at Boscherville, S. Étienne at Caen, S. Benoît-sur-Loire renewed their youth or came into existence. The abbey of Cluny was founded in 909. The great church, however, was not begun until 1089 and its narthex not finished until 1220. The abbey of Cîteaux, the mother house of the Cistercians, was founded in 1098. From this institution came an immense number of monasteries. New orders sprang into existence, and the eleventh and twelfth centuries were especially characterized by the activity of the monks which in no way was more thoroughly manifested than in architecture. Seven hundred and two new monasteries were established in France in the twelfth century; in the thirteenth but two hundred and eighty-seven were added to the number already existing.

The monastic churches, without preserving either the style or the form of the basilicas, are the connecting link between them and the cathedrals. In France the preliminary problems of the Romanesque were largely worked out in them, and they thus paved the way for the Gothic, the art *par excellence* of the cathedrals. The change from the basilica to the cathedral is a story of constructional progress. Few architectural problems are so complicated or so interesting as the transformation of the basilica into the Romanesque church, and then the birth of the Gothic. Yet there is no more delusive study than the ascertaining of the actual beginnings of the Gothic style. That it originated in the Ile de France does not admit of doubt, but as it is known in its most developed form it did not originate at any one spot. Gothic characteristics abound in many French buildings which cannot in any sense be called Gothic, and the most that our present knowledge permits is the determination of some one edifice



A church interior, from a MS. in the Library of Troyes. XIth century.

in which Gothic characteristics appear with such completeness as to warrant its being accepted as a genuinely Gothic structure. And this, it is now admitted, is the abbey church of Morienval. It would not be proper to say that in this building Gothic architecture had its origin, but here the characteristics and component parts were first grouped in one structure, which, it is well to note, was a monastery church.

The new style spread quickly; S. Étienne at Beauvais, the churches of Cambronne, of Angy, of Thury-sous-Clermont, of Bury, of Noël-S. Martin are some few examples of what a recent writer has termed rudimentary Gothic. The church of Poissy, the choir of S. Martin des Champs, Paris, the church of S. Pierre, Montmartre, the abbey church of S. Germer and S. Martin at Étampes are specimens of a transitional style, more developed than the preceding group, and at the end of which stand the base of the towers of the cathedral of Chartres, part of the cathedral of Sens and the abbey church of S. Denis.

The architectural activity of the monks was an unmistakable indication of their tremendous hold upon the people. The eleventh and twelfth centuries saw the culmination of their wealth and power. The monasteries were the single source of culture and learning; they commanded the intellect of Europe and contained the leaders of men. Their resources increased with enormous rapidity, enabled them to build great establishments and magnificent churches, and finally caused their ruin in making the monastic life luxurious. The secular clergy viewed the rapidly increasing power of the monks with unconcealed uneasiness. They had a large personal following among the people, and some monasteries went so far as to boldly deny the authority of the bishops and maintained an independent connection with Rome. The French bishops thoroughly realized the necessity of asserting themselves, and engaging in some enterprise that would excite widespread public interest, and bring to their coffers the vast sums annually poured into the treasuries of the monks. It was in these circumstances that the building of the French cathedrals was undertaken.

No more auspicious time for the development of a great architectural style could be imagined than the cathedral era, the reign of Philip Augustus. It was, above all, an art age; art, in one shape or another, but especially in architecture, was the most expressive form in which people gave expression to their intellectual and religious feelings. The building of a cathedral not only excited the greatest enthusiasm as an enterprise of vast magnitude, but as a work in which every one had some personal interest. Romanesque architecture had reached a point where the Gothic was its natural and logical consequence; the experience gained in the earlier edifices gave the builders of the newer that self-confidence necessary to undertake venturesome experiments in Gothic churches. The spread of the monastic orders helped largely in the new work, carrying skilled knowledge of the style to distant quarters, and creating a taste for the Gothic art where otherwise, perhaps, might never have existed. The rapidly increasing power of the French sovereigns, and the constant additions made to the Royal Domain, not only gave a necessary stability to French life, and greater encouragement to building enterprises, but brought a larger extent of country under one ruler and rendered ideas and art more uniform. Both politically and artistically the preliminary stages required for a healthy artistic growth had been passed. It needed but the stimulating action of the bishops to arouse the people to architectural enterprises greater than they had heretofore undertaken, and which would create their own structures, built with their personal help and money, by them and for them.

More than any English cathedral, the French cathedrals are people's churches. They were not the product of civic pride such as the Italian cathedrals of Florence, Sienna, Pisa or S. Mark's at Venice. They were religious in their origin, but it was a democratic church that undertook them

and carried them, as near as may be, to completion. A church like Notre Dame, or Amiens, or Chartres, or Rouen standing in the centre of a busy, bustling city, the houses of the people crowding its very doors, the market place, the chief place of assembly perhaps before the great west portal, came closer to the daily active thoughts of the people than a Canterbury or a Salisbury or a Gloucester in its grassy close, apart from the noise of the worldly life, a silent, uninterested spectator from the distance of the active concerns of men. These were monks' churches, built by the monks and for them: the French cathedrals are monuments of secular and popular religious enthusiasm and feeling, that gives them a unique place in the history of humanity, of religion, and of architecture.

Yet the movement here termed French, and rightly so, was confined to that small portion of the great country we now call by that name, known as the Royal Domain. Here it was that the building enthusiasm chiefly centred, and here Gothic architecture reached its highest development. Modern France is the union of many districts which in the Middle Ages were held together by rather loose ties. The history of that time is largely concerned with bringing these outlying regions under the rule of the monarchy, and hence it was that the great architectural development manifested in the Royal Domain was only partly reflected in the other districts. The Cathedral of Provence, of the early thirteenth century, was a very different building from the Cathedral of the Ile de France of the same time. It is only later that northern fashions came into vogue in the south, and the developed Gothic is more to be sought in southern France in the fourteenth and fifteenth centuries than in the thirteenth. This fact does not, however, lessen the claim of the churches of the Ile de France to be known as typical French churches, nor the conditions under which they were built to be accepted as typically French conditions. From the vantage ground of the end of the sixteenth century, when the reign of the Gothic had all but closed, it is possible to estimate properly the full effect of the architecture of the Royal Domain upon the whole of France.

IV.

The ecclesiastical history of France goes back to the earliest times. Provence is rich in the legends of men and women personally connected with Christ. Very early a goodly company journeyed down into Gaul, having been, so runs the tale, driven from Jerusalem by persecution. There were Mary Jacobi, the sister of the Virgin; Mary Salome, the mother of the Apostles James and John; Martha, Mary Magdalen, Lazarus, who had been raised from the dead; Restitutus, the man born blind who had been healed by Christ; and a servant Sarah. It may be readily imagined that men and women such as these would leave indelible marks of their work. Lazarus founded the bishopric of Marseilles, Restitutus that of S. Paul-Trois-Châteaux; Mary Jacobi and Mary Salome settled in the now desolated town of Les Saintes Maries; Martha founded the church of Notre Dame des Doms, at Avignon, in honor of the still living Virgin, and endeared herself to the people of Tarascon by delivering them from a dragon which threatened their destruction. The tombs of the Marys may still be seen in their city of Les Saintes Maries, and the good folk of Tarascon cherish the memory of Martha and the dragon to this day with their immortal *Tarasque*.

Nor were these the only travelers of Apostolic times in Gaul. Pontius Pilate was exiled to Vienne under Caligula and committed suicide by precipitating himself from the summit of the Mont Pilat, in the Cevennes, which is still known by his name. At the head of the list of the bishops of Béziers stands the name of S. Aphrodisius, who was, so the story says, governor of Egypt when the Virgin and Joseph went down with the infant Jesus. Converted after the Ascension, he resigned his lofty post, was baptised, and became a humble bishop in southern Gaul. Still another name is that of Trophimus, the famous first bishop of Arles, who is mentioned by the Apostle Paul as one of his compan-

ions who accompanied him on one of his journeys. Paul, the first bishop of Narbonne is said to be one Sergius Paulus, the proconsul converted in Cyprus by the Apostle Paul when Elymus the Sorcerer withstood him.

Whether there be any truth in these tales we need not inquire; certainly there is no need to demolish them. It is more to the point, perhaps, to know that the first authoritative reference to the Christians in Gaul is the slaughtering of a thriving cummunity at Lyons in a persecution in the year 177. From that time on the list of French bishops rapidly increases. In these good old days every bishop was a saint, or deemed so by posterity, and the records of the times are crowded with the names of holy men who hesitated at no sacrifice in carrying the Gospel of Christ to distant and unknown regions. Many of these names are now lost beyond recall, many others cannot be accurately dated. Omitting doubtful ones, and accepting only ascertained dates, fourteen sees had their origin in the third century, thirty-five in the fourth, thirty in the fifth, and twenty-five in the sixth. These centuries were the periods of episcopal development in Gaul: no single century, save the fourteenth exceeding them in the number of foundations. The years 1317 and 1318 saw the erection of fifteen sees, chiefly by the conversion of monastic establishments into bishoprics. The revolutionary epoch, in which fifty-six sees were suppressed, alone approaches these first centuries in episcopal changes.

The culminating event in early French ecclesiastical history is the conversion and baptism of Clovis, baptised by S. Remi at Reims on Christmas Day, 496 or 497. The conversion of the emperor Constantine had scarce more momentous consequences to western Europe than that of the Frankish chieftan. While it is doubtless true that the savage Frank fell far short of the modern idea of conversion and well doing, it is from this event that the real beginnings of Christianity may be counted in what is now known as France.

No English bishopric antedates the year 597—one hundred years after the conversion of Clovis—in which S. Augustine landed in Britain, the clergy and bishops of the native British church being of too dim personality to have historical value, however great their ecclesiastical interest. Yet at this time Gaul was thickly dotted with bishoprics; in the sixth century it contained two hundred and thirty-nine convents, and from the sixth to the eighth no less than eighty-three church councils were held within its borders. When the light of the Church first illumined Britain the foundations had been firmly laid in Gaul for that superstructure which was to find such complete and glorious illustration in the cathedrals of the Middle Ages.

Each primitive bishop had his cathedral, though what manner of edifice it was we can scarcely conjecture. The *Historia ecclesiastica Francorum* of Gregory of Tours, while abounding in interesting details of the early history of the Franks, is peculiarly deficient in archæological information. We gather from his narrative that the basilican form was usual in Gallic churches, as would be natural, since in architecture as in religion the usages of Rome and of Italy would be closely followed. He tells us that the basilica built by Bishop Perpétuus at Tours was 160 feet long, 60 feet wide, and 45 feet high from floor to ceiling. It had thirty-two windows in the choir, and twenty in the nave. It had 120 columns, and eight doors, of which three were in the choir and five in the nave. And then, after these highly interesting arithmetical details, he leaves the subject, simply adding some references to the services held there. As this edifice existed when the description was written, it may be assumed to be fairly accurate, but it was a building of exceptional importance. Obviously the pious bishop allowed his rhetoric and fondness for the marvelous to get the better of him in describing the baptism of Clovis. The church, he writes, was sumptuously adorned, brilliant with the light of innumerable tapers, and filled with perfume of such sweetness that those who were present supposed themselves to be breathing the air of Paradise.

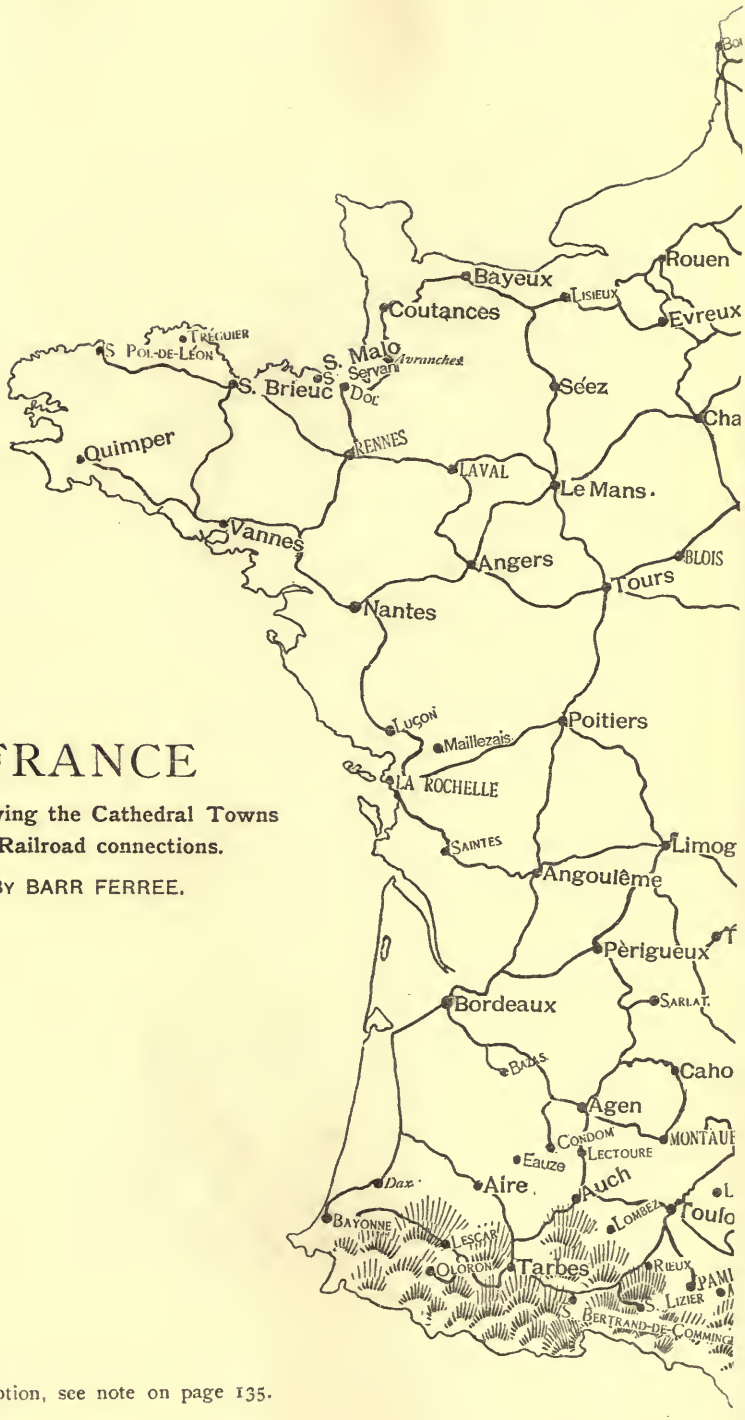
It is needless to undertake to restore edifices of which now no stone remains upon another, and of which our knowledge is so limited. Both wood and stone seemed to have been used as the building material, the choice depending, perhaps, upon both conveniences and the means at hand. But the descriptions of Gregory and the few other early writers who make mention of architecture in any way must be taken with some allowance for their ideas of the importance of the buildings. Certainly until the time of Charlemagne Gaul was in no condition to support expensive or elaborate church buildings, nor was there the mechanical knowledge to build them. Such few edifices as have survived from the ninth century are apt to be better guides to the earlier structures than the impassioned and patriotic descriptions of ecclesiastical chronographers.

Buildings like the Basse-Œuvre at Beauvais, the Baptistry at Poitiers, the churches of Savesnières and Gennes, the crypts of S. Aignan and S. Avit at Orléans, part of the crypt of the cathedral of Chartres, the churches of Cravant, near Chinon, of S. Généroux (Deux-Sèvres), of S. Laurent at Grenoble, of S. Pierre at Vienne (Isère), of Vieux-Pont-en-Auge (Calvados), of S. Martin at Angers, of S. Christopher and S. Lubin at Suèvres (Loir-et-Cher), of La Couture at Le Mans, which in whole or in part may be attributed to the Merovingian and Carlovingian eras, show better than the ancient descriptions what manner of buildings the early French churches were. With Charlemagne began a new epoch in architecture, and his chapel at Aachen is not only a great advance on preceding edifices, but, notwithstanding its obvious modeling after S. Vitale at Ravenna, a really important monument to the abilities of northern architects.

It is well to remember, however, that all the great churches of the earliest times were destroyed to make room for later and more sumptuous buildings, if indeed they had not fallen into decay from inefficient workmanship. Most of the churches of Merovingian and Carlovingian eras are very small and give few hints of the Italian methods of church building which may have been more closely followed in more important structures.

A capital from the crypt of S. Denis, attributed to the eighth century by Lenoir, gives us the exterior and interior of a church and enables us to form some notion of architecture at this time. The façade shows two towers with low pyramidal roofs. In the centre is a round-headed doorway, greatly exaggerated in height, and over which is a round-headed window representing an early stage of the wheel or rose windows of the French mediæval front. The interior of the church, which stretches along the capital parallel to the façade, exhibits five round arches supported on single columns. Two of these columns are interrupted in order to make place for the worshippers. The furthermost bay is occupied by an altar.

A manuscript in the library at Troyes, exhibiting the miracles of S. Benedict and dating from the eleventh century, contains an illustration of a much more pretentious structure. As in the preceding example a transverse section across the choir is combined with a longitudinal section down the nave. The choir shows two arches, an unusual arrangement which would bring a row of columns down the centre of the nave. Two explanations are possible here: either the central column behind the altar indicates an apse, in which case the columns would not be continued in the nave, an hypothesis which is strengthened by the curved apses which appear on either side of this portion of the figure; or the artist, deeming the space filled by the altar too wide for a single arch, has drawn two for appearance's sake. The probability is that we have actually a transverse section, since the art of drawing at this time had not sufficiently mastered perspective to render any other explanation likely. The really important things in the sketch are the semi-circular apse on either side of the choir, which may be taken as indications of the semi-circular form of one apse, rather than as two separate apses one at each end of the church; and the central tower, erected over the altar to give greater emphasis to this part.

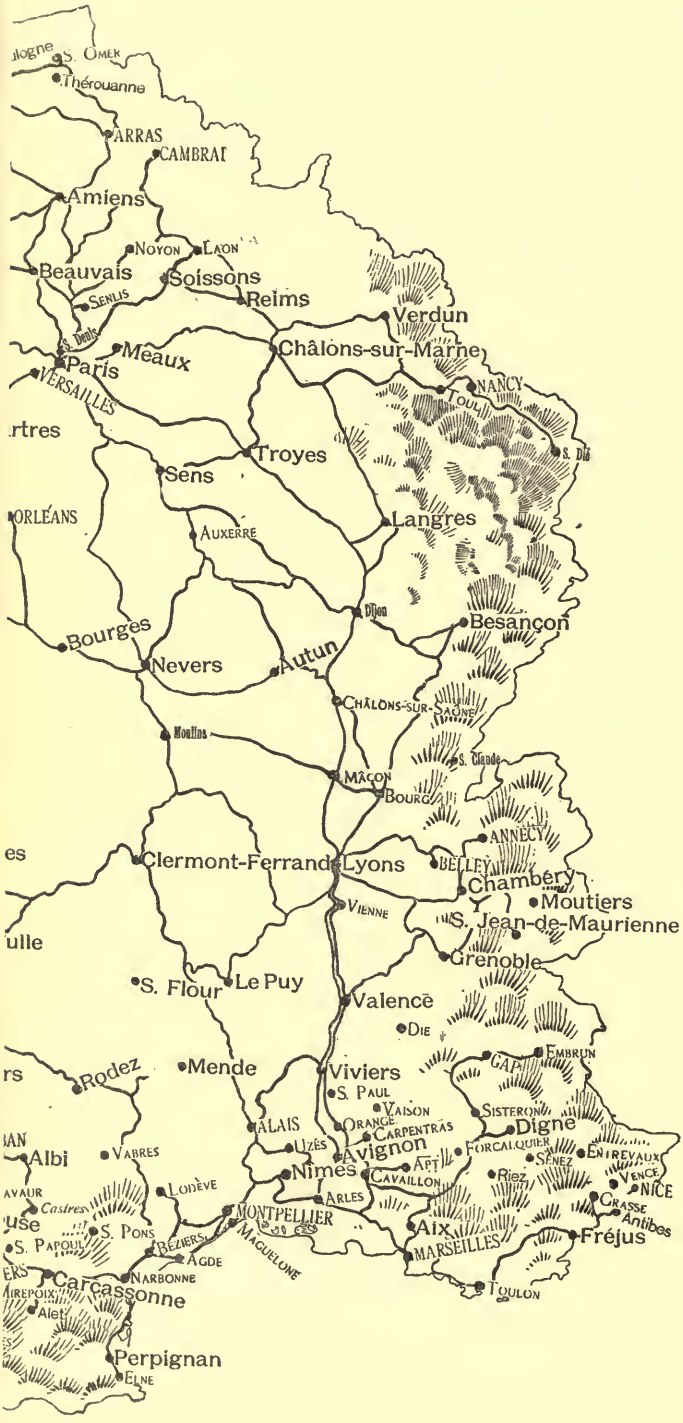


FRANCE

Map showing the Cathedral Towns and Railroad connections.

BY BARR FERREE.

For description, see note on page 135.


S. Omer
Thérouanne
Arras
Cambrai
Amiens
Noyon
Laon
Beauvais
Soissons
Senlis
Reims
Verdun
Meaux
Paris
Châlons-sur-Marne
Versailles
Nancy
Troyes
Sens
Langres
Auxerre
Dijon
Besançon
Bourges
Nevers
Autun
Châlons-sur-Saône
Moulins
Mâcon
Bourg
Annecy
Clermont-Ferrand
Lyons
Belley
Chambéry
Moutiers
Vienne
S. Jean-de-Maurienne
Grenoble
S. Flour
Le Puy
Valence
Die
Rodez
Mende
Viviers
Gap
Embrun
S. Paul
Vaison
Alais
Orange
Carpentras
Sisteron
Digne
Albi
Vabres
Uzès
Avignon
Apt
Forcalquier
Sanez
Entrevaux
Nimes
Cavaillon
Riez
Vence
Nice
Castres
Lodève
Arles
Grasse
Antibes
Montpellier
S. Pons
Aix
Fréjus
Béziers
Maguelone
Agde
Marseilles
Narbonne
Carcassonne
Toulon
Alet
Perpignan
Elne

The arcade under the roof of the apse shows a *motif* in high favor in Italy; the roof of the choir, represented in projection, shows the same. The two towers, with their open galleries at the top, doubtless represent the façade of the building, and, like the decoration of the apse, indicate Italian models.

Barr Ferree.

The cathedrals marked in the accompanying map may be classified as follows:

Cathedral cities with ancient cathedrals, in **bold face** type:—Agen, Aire, Aix, Albi, Amiens, Angers, Angoulême, Auch, Autun, Avignon, Bayeux, Bayonne, Beauvais, Belley, Besançon, Bordeaux, Bourges, Cahors, Carcassonne, Chambéry, Châlons-sur-Marne, Chartres, Clermont-Ferrand, Coutances, Digne, Evreux, Fréjus, Grenoble, Langres, Le Mans, Le Puy, Limoges, Lyons, Meaux, Mende, Moutiers, Nantes, Nevers, Nîmes, Paris, Pérégueux, Perpignan, Poitiers, Quimper, Reims, Rodez, Rouen, S. Brieuc, S. Flour, S. Jean-de-Maurienne, S. Malo, Séez, Sens, Soissons, Tarbes, Toulouse, Tours, Troyes, Tulle, Valence, Vannes, Verdun, Viviers.

Cathedral cities with modern cathedrals, that is built after the sixteenth century, in CAPS:—Arras, Cambrai, Gap, La Rochelle, Marseilles, Montauban, Nice, Pamiers, Rennes. The cathedrals of Belley, Montpellier and Annecy have been so completely modernized as to warrant inclusion in this class, to which also Orléans cathedral properly belongs. All these sees are of ancient foundations, but the cathedrals of Blois, Laval, Nancy, Versailles and Alais, which are modern churches, except the last, which is much restored, are of modern foundation.

Cities formerly sees of bishops, now without episcopal rank, but containing ancient cathedrals, in SMALL CAPS:—Agde, Apt, Arles, Auxerre, Bazas, Béziers, Bourg, Carpentras, Cavaillon, Châlons-sur-Saône, Condom, Die, Dol, Elne, Embrun, Entrevaux (Glandèves), Forcalquier, Grasse, Laon, Lavaur, Lectoure, Lescar, Lisieux, Lodève, Lombez, Luçon, Mirepoix, Maguelone, Narbonne, Noyon, Oloron, Orange, Rieux, S. Bertrand-de-Comminges, S. Lizier (Conserans), S. Omer, S. Papoul, S. Paul-Trois-Châteaux, S. Pol-de-Leon, S. Pons-de-Thomiéres, Saintes, Sarlat, Senlis, Sénez, Sisteron, Tréguier, Toul, Toulon, Vabres, Vaison, Vence, Vienne.

Non-episcopal cities with modern cathedrals, in *italics*:—Castres, Dax.

Cities not now episcopal with ruined cathedrals or with none at all, in roman:—Alet, Antibes, Avranches, Boulogne, Eauze, Maillezais, Riez, S. Servan (Aleth), Thérouanne, Mâcon.

Modern sees with ancient churches, that is, churches not built as cathedrals, now used as such, tall **Condensed Letter**:—Dijon, Moulins, S. Claude, S. Dié, S. Denis.

This classification is general only; it is independent of the amount of restoration or modern additions the buildings classed as "ancient" may have been subjected to, as well as to whether they were originally built as cathedrals or not. The cathedral of Ajaccio in Corsica is not included in this list.

Both Arras and Cambrai had mediæval cathedrals which were destroyed at the time of the Revolution. The present cathedrals are modern. The cathedral of Riez has been rebuilt during this century, but as the see was suppressed in 1801 prior to the rebuilding it cannot now be rightly termed a cathedral.



Capital from S. Denis. VIIIth century.



Brooklyn, N. Y. MONTAUK CLUB. F. H. Kimball, Architect.

(See page 145.)



THE FIRST TERRA COTTA BUILDING ERECTED IN NEW YORK CITY.

East 36th street, near Madison avenue.

THE HISTORY OF TERRA COTTA IN NEW YORK CITY.

IN the spring of the year 1870 a young architectural clay-worker, who had recently landed, was walking up Broadway with a venerable and white-haired old gentleman, who at that time was well known and respected in New York. They were engaged in a study of the various materials used for the exteriors of the buildings on that thoroughfare. The old gentleman was Marcus Spring, a retired dry-goods merchant.

While standing on the east side of the street, looking up at old Trinity Church, Marcus Spring was recognized by an influential and popular architect, who was then conducting an extensive and lucrative practice. To this architect Mr. Spring explained the object of his presence at that place, and requested him to give his professional opinion concerning the probability of success attending any attempt to introduce architectural terra cotta work into New York and its vicinity. The reply was prompt and positive:

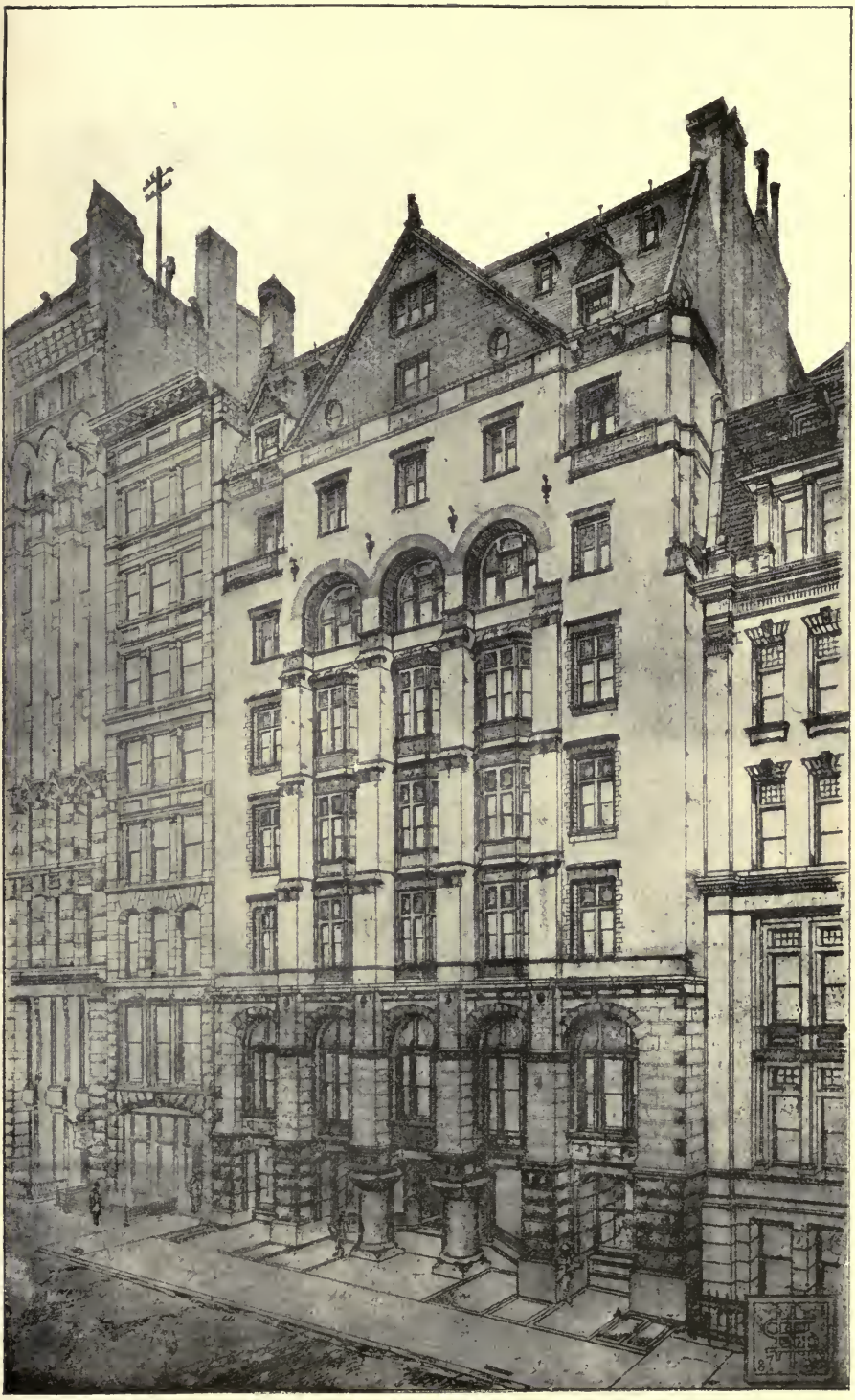
"My dear sir, there can be but one opinion upon that subject. It would most surely fail. Terra cotta has been tried over and over again, and every attempt has resulted in loss and vexation to all parties concerned. We know all about that material; it is useful enough in Europe, but it will

not withstand the rigors of our American climate. If that young man intends to continue his trade of terra cotta making I would strongly advise him to return to England, for he will find it impossible to earn a living for his family at that trade in the United States. Our architects and builders will most certainly refuse to make any further experiments with the material."

This emphatic opinion, from one who had apparently given the subject consideration, was very discouraging to Marcus Spring. But it did not so impress the clay-worker, for looking over at the Trinity Building, north of the graveyard, he said, "that looks to me like a brick building, and if brick will withstand the climate of New York terra cotta most certainly will, because I hold that terra cotta is only a higher grade of brick-work." The true significance of the value of the Trinity Building in helping to demonstrate the permanent utility of terra cotta was not then apparent, for the grotesque animal heads which form the keystones to the window arches, and the modillions which decorate the main cornice of the building are actually made of terra cotta, the material being hidden under a coat of paint, which had been used to make the terra cotta resemble brown



New Britain, Conn. RUSSELL & ERWIN BUILDING. McKim, Mead & White, Architects.



Wall street, New York City. ASTOR BUILDING. H. J. Hardenbergh, Architect.



WAREHOUSE ADJOINING GRACE CHURCH PARSONAGE.

Broadway, New York City. Renwick, Aspinwall & Russell, Architects.

stone. This very building, therefore, was one of the few *successful* attempts, but our friend, the advising architect, did not know of it or he might have reconsidered his opinion. The terra cotta work used in this building is still perfect, although it has been found necessary to recut the damaged and disintegrated faces of the brown stone work in the walls and mouldings.

Here let us define the difference between "terra cotta" and "architectural terra cotta."

"Terra cotta" is simply "baked earth," a term technically distinct from porcelain; it may be lacquered, painted or decorated in any color to represent various materials. But "architectural terra cotta" presents itself in the natural color which it receives from its constituent ingredients during the process of being burned into an imperishable material. It does not represent any other material, it is not an imitation of stone or iron or wood (although attempts are often made to make it such), it is a recognized building material having its own quality and purpose, and when used ought to be distinctly recognizable. Therefore, although Richard Upjohn did use terra cotta in the construction of Trinity Building in the year 1853, he did not use architectural terra cotta. He simply used a material of burned clay painted to make an imitation of brown stone.

A very earnest contemporary of Richard Upjohn in that early effort to produce terra cotta was Mr. James Renwick, who is still an earnest worker and a believer in the value of architectural terra cotta. No one did more than Mr. Renwick to introduce terra cotta work into New York, and one of his most successful efforts still remains in the window trimmings of the St. Dennis Hotel, located on Broadway, opposite Grace Church. No architect recognized the higher claims of architectural terra cotta more thoroughly than he did. It is an interesting fact that Mr. Renwick has been personally identified with all the progressive history of terra cotta work in New York City from 1853 up to the present time. The architectural firm of Renwick, Aspinwall & Russell have designed very many special uses for this material. One especially good example of decorative terra cotta work is the altar and reredos of St. Mark's Church, at the southwest corner of Avenue B and Tenth street, New York. This was made in Boston about 1882. It is designed in early English Gothic and is exceedingly well executed in both modeling and color. Another design by Mr. Renwick that called for especial care in construction and detail is the Church of All Saints, recently erected on the northeast corner of Madison avenue and One Hundred and Twenty-ninth street, New York. The traceried rose and mullioned windows, the pinnacles and gables, have all been made of gray terra cotta.

In 1870 the New York architects and builders certainly were not ready for the reception or use of architectural terra cotta, and therefore no organized effort was made at that time to manufacture it in this vicinity; yet old clay-workers, such as John Stewart, of West Eighteenth street, Henry Maurer, of East Twenty-third street, New York, and C. W. Boynton, of Woodbridge, N. J., can very well remember that the subject was submitted to them at that time, and that they agreed with the architect who said it would not do to make any new attempts.

The first American city to welcome architectural terra cotta work was Chicago. The Western metropolis teems with men who, like the Athenians of old, are ever on the lookout for some new thing. The cost of stone, the rusting of iron and the danger of wooden structures to city property led them to cheerfully welcome a material that would conjoin with their vast brick-making industries, and give them a decorative and useful building material.

W. Boyington, John Van Oxdell, Burling & Adler (now Adler & Sullivan), Carter, Drake & White, W. L. B. Jenney, and Burnham & Root, were the pioneer architects who first recognized the utility and advantages of architectural terra cotta. The great fire at Chicago in 1871 converted the real estate owners and builders to a belief



New York City. HARRIGAN'S THEATRE. F. H. Kimball, Architect.

(See page 145.)



Union square, New York City. LINCOLN BUILDING. R. H. Robertson, Architect.

(See page 148.)

in its usefulness, and they used it very extensively in the rebuilding of the city, so that the manufacture grew in demand rapidly. Especially was this true of the trade in the outlying Western cities, as Des Moines, Omaha, Milwaukee and others—for its light cost for freight and the scarcity of skilled labor rendered it desirable.

In 1887 Architects Geo. B. Post, of New York ; Whitney Lewis, of Boston ; H. H. Richardson ; and Messrs. Stone & Carpenter, of Providence, began to use the material. Messrs. Stone & Carpenter used it for the Brown University and the City Hall in Providence, R. I. H. H. Richardson used it upon Trinity Church, Boston. Whitney Lewis used it upon a large residence on Commonwealth avenue, Boston. G. B. Post used it upon a residence on West Thirty-sixth street, New York. These formed the Eastern foundation upon which the vast architectural terra cotta industry of America has been organized and developed.

To Geo. B. Post belongs the honor of having erected the first strictly architectural terra cotta building in the City of New York. This is located on the north side of West Thirty-sixth street, near Madison avenue. It was built by Jas. B. Smith in 1877, and is a good evidence of the weather qualities of terra cotta, all of its detail being as perfect to-day as when it was set up fourteen years ago. The ornamentation of this work is worth especial notice, for we believe it to be the only example in New York City of that description of work. It was not modeled as clay ornamental work is generally done, viz., in a plastic condition, but the slabs were formed solid, and when partially dry the designs were carved with wood-carving tools, no hammers being used. Isaac Scott, of Chicago, was the originator of this method of producing ornamentation, and it met with great favor among the Chicago architects. The terra cotta for this building was made in Chicago by the man who in 1870 had been advised not to attempt to induce New York architects to use the material. New York now has two large establishments employing more than six hundred men. It has more than half a million of dollars of capital invested in the business, and is producing upwards of eight hundred thousand dollars worth of building material per annum. Boston, Baltimore and Philadelphia also have extensive works engaged in the same industry, and there are many small concerns in various places spread all over the United States. All these are the direct outgrowth of the Chicago Terra Cotta Works, which are still in prosperous operation.

The next step in the progress of this industry was made by Silliman & Farnsworth when they introduced it (in the erection of a large commercial building) in connection with moulded red and black brick-work ; this was done in the Morse Building, at the corner of Nassau and Beekman streets, erected in 1879. In this building the raised or protected vertical joint was first used. This form of joint prevents the rain from scouring out the pointing mortar, and it is an important and necessary precaution which ought to be used upon all exposed surfaces.

When once the architects of New York began to recognize the use of architectural terra cotta they caused a vast amount of development in the production of it. Having no precedent, they made all kinds of demands, such as had not hithertofore been required or expected ; but these very requirements have tended to lead the makers into new channels, which have produced successful results in regard to color, ornamentation, construction and surface treatment, so that now there is no reasonable doubt that architectural terra cotta as it is designed and made and used in America is far better in many respects than the best products of European factories.

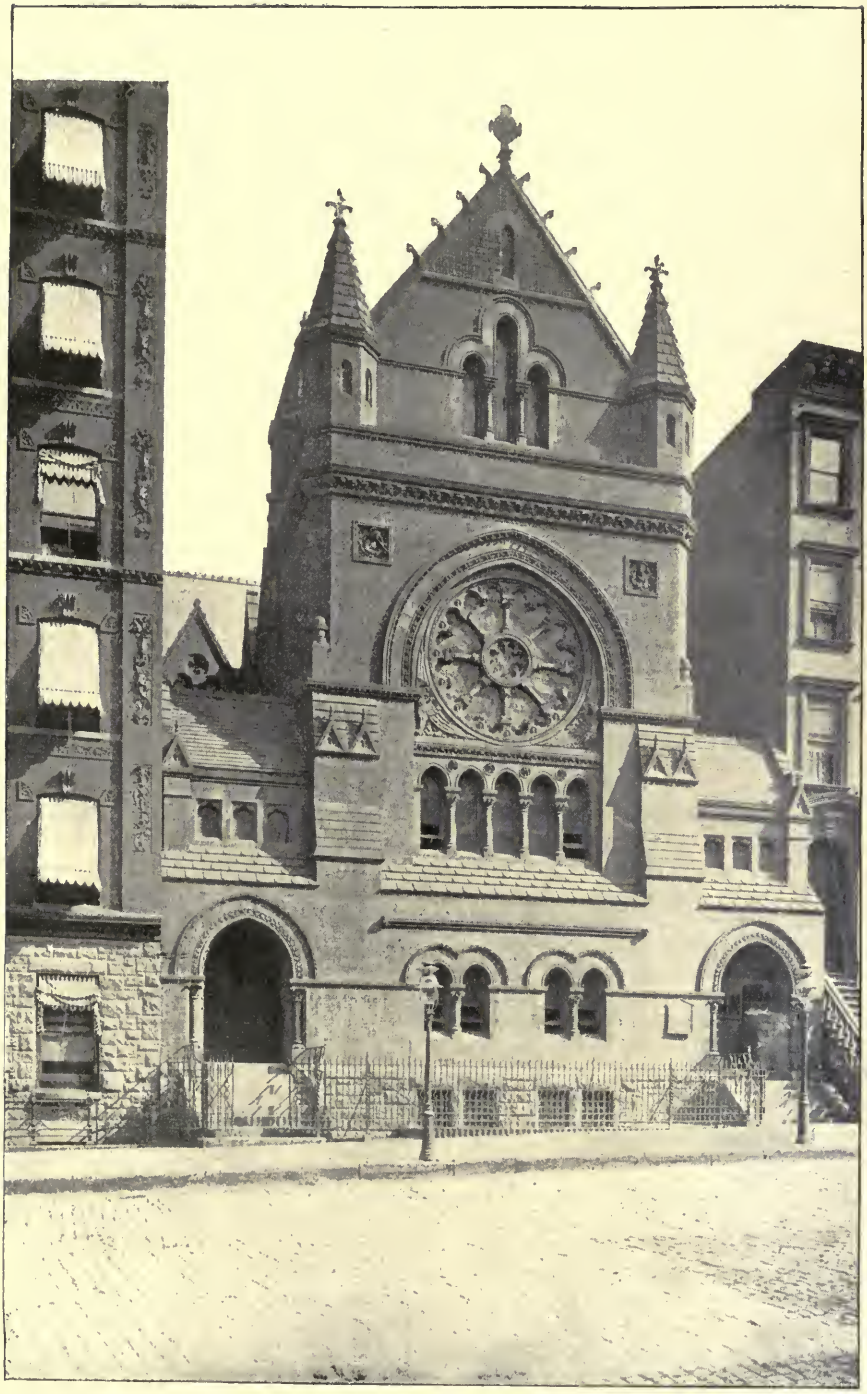
The Brooklyn Historical Society's Building was designed by Geo. B. Post in 1878, and it was the first important or public building in which the material was used by a New York architect. This was followed by the Produce Exchange Building, the Cotton Exchange Building, and many others by the same architect, to whom the clay-worker owes a large measure of thanks for his practical assistance in the development of this industry.

The introduction of highly ornamental work in terra cotta was begun by F. H. Kimball and Thos. Wisedell about 1880, when they designed the New York Casino, Thirty-ninth street and Broadway. In this specimen, which is of Moorish design, it was shown that terra cotta was capable of elaborate decoration at moderate cost. This capability has been constantly put before the public by F. H. Kimball in the various buildings which he has designed, viz., the Catholic Apostolic Church on West Fifty-seventh street, which has an elaborate rose window, in which several features were introduced that had not before been attempted in America. The Corbin Building at the corner of John street and Broadway is another example of profuse decoration of surfaces, which, together with the color of the terra cotta, produces effects at once agreeable and varied, and almost unattainable in any other material. The Montauk Club House furnished still another opportunity for taking advantage of the facility which the use of terra cotta furnishes the designer. The name of the club gave an Indian significance to the design which the architect made use of, and the result is an ensemble of Indian trophies and implements utilized in decorative features that are both pleasing and suggestive, while the sculptured friezes enabled the architect to record in a durable material many incidents of Indian life and customs which makes this structure an object of interest to the general public. The façade of the new Harrigan's Theatre was treated in the same spirit, and subjects connected with the Harrigan's successes were used as motifs for the decoration. For this purpose there is no other material so useful to the architect, because it permits of the original sketch models being burned and used (a process which prevents the defacement and mutilation incident to remodeling and casting).

The subject of "color" in terra cotta was first brought under consideration by, and it received its present importance from, Eastern architects. Previous to 1877 almost all American architectural terra cotta was of a stone color, Joliet limestone being the Chicago ideal, grayish buff was the prevailing color of Chicago terra cotta. Eastern architects, however, demanded other colors. Geo. B. Post asked for red, Whitney Lewis called for yellow buff, while Messrs. Stone & Carpenter wanted brown. Thus the old fashion passed away and the polychrome prevailed, and is now the present demand. This has done very much towards increasing the demand for architectural terra cotta, and Architects McKim, Mead & White were perhaps the foremost leaders in this branch of the business; certain it is that to them belongs the credit for the introduction of the Pompeian or mottled color which they used on the Tiffany House, also a neutral reddish color used for the Russell & Erwin Building (New Britain, Conn.), and the white used upon the Hotel Imperial, the Madison Square Garden and other buildings.

One of the most serious problems in the proper use of architectural terra cotta was the treatment of its surfaces, and this quality has been most successfully developed by Architect Cyrus L. W. Eidlitz. The bold and massive character of his style (Romanesque) forbids the use of the usual old-fashioned smooth surface. Therefore he made a study of the subject, and the result of his efforts was the introduction of the combed or crinkled surfaces, by a method which he personally devised, and which method is now the common property of all clay-workers. It has helped greatly to improve the artistic value and appearance of terra cotta work. This surface treatment was used upon the Art and Library Building (see ARCHITECTURAL RECORD, Vol. I., No. 2, p. 167) in Buffalo which is made of red terra cotta; also upon the Telephone Building in New York which is of a warm reddish buff, and upon the Racquet Club-house which is of dark or so-called Pompeian color. In all of them the advantage of the surface treatment is apparent. It is a truly distinctive feature, which shows clearly that it is done in plastic material and therefore indicates terra cotta work.

Thus have the architects of New



CATHOLIC APOSTOLIC CHURCH.

West 57th street, New York City. (See page 145.) F. H. Kimball, Architect.



RESIDENCE ON EAST 36TH STREET.

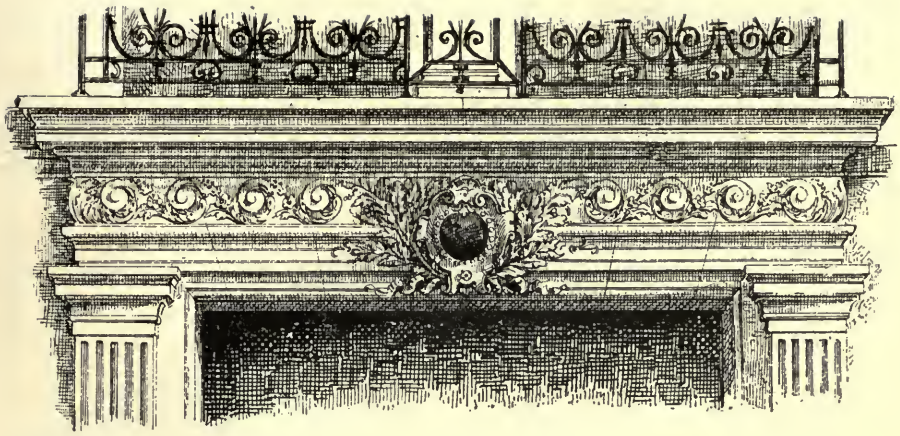
Near Madison avenue, New York City. (See page 144.) Geo. B. Post, Architect.

York urged on the terra cotta makers, compelling them to new efforts, and in many instances these efforts have been successful, so that by the coöperation of the architects and the clay-workers architectural terra cotta in America is probably in many respects in the van in comparison with older countries.

It would be impossible to mention all the architects who have made this progress and development possible, and we must be content to specify a very limited list of buildings that are especially instructive to the architectural terra cotta makers as suggestive of various matters of detail which may prove profitable to them if examined in an inquiring mood, with a view to the improvement of their processes of production. Such lessons may be learned by a study of the Astor Building, Wall street; the Western Union Building, Broad street; the Schermerhorn Building, corner Great Jones street and Lafayette place—H. J. Hardenberg, architect; the De Vinne Press Building, corner of Fourth street and Lafayette place—Babb, Cook & Willard, architects; the Church of the Messiah, Brooklyn; the Railroad Men's Reading Rooms, Madison avenue and Forty-fifth street; the Lincoln and other office buildings on Broadway, between Fourteenth street and Eighteenth street—R. H. Robertson, architect; the Carnegie or New York Music Hall, corner Fifty-eighth street and Seventh avenue—W. B. Tuthill, architect; the Colonial Club House, 72d street and Boulevard; the West End Presbyterian Church, One Hundred and Fifth street and Amsterdam avenue—Henry Kilburn architect; the Collegiate Church, corner Seventy-seventh street and West End avenue—R. W. Gibson, architect. Upon this spirit of coöperation depends the future development of this industry, and doubtless it will lead to greater advancement in the future than that it has produced hitherto, because the improvements hoped for are to be based upon so much good work already done.

James Taylor.





VARIOUS CAUSES FOR BAD ARCHITECTURE.

THE general effect of all buildings in no city of the world is satisfactory. Every city has its squalid and dilapidated looking quarters, where the buildings, commonplace and tasteless enough in the beginning, have fallen into some one of the various stages of ruin that only invite the coming of fire, or the hand of the dealer in second-hand building material.

Neither can it be said that the condition of any of the most celebrated streets in the world is architecturally such as to compel unqualified commendation. There may be streets in Paris that display nothing glaringly defective; but the city, it will be remembered, was rebuilt by political machinery during the reign of the last Napoleon, and, like everything else done by machinery, it lacks the variety of hand-made manufactures. The Mansard roof has been used in Paris until the streets look like unhelmeted battalions of men, all with retreating foreheads, drawn up in line of battle. Many of the streets of Paris are beautiful; but it is sometimes thought that they are too much like an exhibition of pictures all by the hand of one master. Everywhere in the world there is something imperfect or incomplete architecturally, and it will be interesting and possibly useful to study some of the reasons for the defects. If it be found that there are sometimes defects too radical to be removed, we may still look to discover errors that education can amend.

The first obstacle to perfect architectural development is one, of course, which can never be removed either by time or training. All the cities of Christendom, except some of our exhalations of the night in this country, and in some colonial countries, are the growth of many years, generally the growth of many centuries, and in their social conditions they have risen gradually from poverty to the different degrees of opulence now displayed. They are advancing, also, with greater or less rapidity according to their environment and opportunities, in civilization and the desire for comforts and luxuries. But their buildings were largely the product of a period when poverty only was the common inheritance; and the humble origin of such structural objects as they display is stamped indelibly on every story. The chief object in their construction was to protect the inmates and their goods from the inclemency of the weather. They were not always built without any decorative motive. Occa-



TENTH STREET HOUSE.

(See "History of Terra Cotta.")

New York City. Renwick, Aspinwall & Russell, Architects.

sionally we see attempts at architectural decoration in the measure of those old-time rookeries; but the results in such cases suggest the freak of some house carpenter or mason whose architectural instincts were irrepressible. The buildings as they stand were simply a product of domestic needs of the commonest kind. But here is the obstacle that still stands in the way of improvement. Society is becoming more opulent and more highly civilized; but the relative condition of its members has not radically changed, and, though we may reconstruct whole districts as fast as ruin compels their reconstruction, poverty has not yet been completely eliminated from the architectural problem. We may look to see a perpetuation of like causes producing like effects.

This obstacle in the way of good architecture is not only a peculiarly obstinate obstruction but it is very serious in its effects on the architectural improvements of our cities. The day can never come when men of moderate means will not be found constructing their own shelter, and the chief part of the structural work in all cities must continue to be done with no æsthetic motive An alternative might be temporarily found in the new nationalism of the cranks; but it is an alternative that will not be worth considering. We must expect to see in the future, as men have seen in the past, all our buildings with any pretension to æsthetic merit concentrated in opulent quarters, while the larger parts of our cities remain commonplace.

There is also another obstacle in the way of tasteful architecture which follows upon the first obstacle as a carollary. Or, rather, it is the same obstacle differently manifested, or interposed in a different form. If men of moderate means cannot build very expensively when they build for themselves neither can the rich build expensively when they build for the use of men of moderate means or for the poor. The ability of the tenant to pay rent must regulate the standard of all buildings built for tenancy. The landlord proposing to build examines the plans of the architect with his head necessarily full of his rent roll, and he must see that everything redundant is shorn away. Certain structural requirements must be observed, for the law interposes here, and decrees if it does not always obtain immunity from danger for the tenant. The building must be constructed, too, with an eye to sanitary requirements. There must be good ventilation, often to be obtained only at the sacrifice of considerable space, and the plumbing must be well done. All this is regulated by law so far as the law can regulate the hidden and inscrutible, and if there be any irregularity in complying with legal provisions the gain is not likely to accrue to the landlord. He must meet the legal requirements by putting the cost upon the building; and by the time health and safety have been considered there may be only a slight margin left for administering to those æsthetic sentiments which alone he is free to forget.

Many difficulties beset the construction of tenement quarters which do not appear on superficial observation, and which must continue to make those quarters the representatives of the architecturally commonplace. No agency in active operation for their improvement is yet visible. Every now and then we hear of some philanthropically-disposed persons, or association of persons, who have determined to build model tenement houses where quarters may be obtained at the minimum of cost, and everything shall be luxurious and perfect. But the experiments usually end with the first attempt. There are two chief causes for their want of success. First, the number of philanthropically-disposed men in the world is not relatively large, and, secondly, the number of persons who are willing to live on the charities of the philanthropically disposed is relatively still smaller. We cannot divest model tenement houses, built without any eye to profit, of their eleemossynary character, and no high-spirited man, whether rich or poor, will care to publish to the world that he is saving money by asking other men to forego their profits.

These are the chief obstacles to be seen in the way of model tenement



Brooklyn, N. Y. LONG ISLAND HISTORICAL SOCIETY. Geo. B. Post, Architect.

(See page 144.)

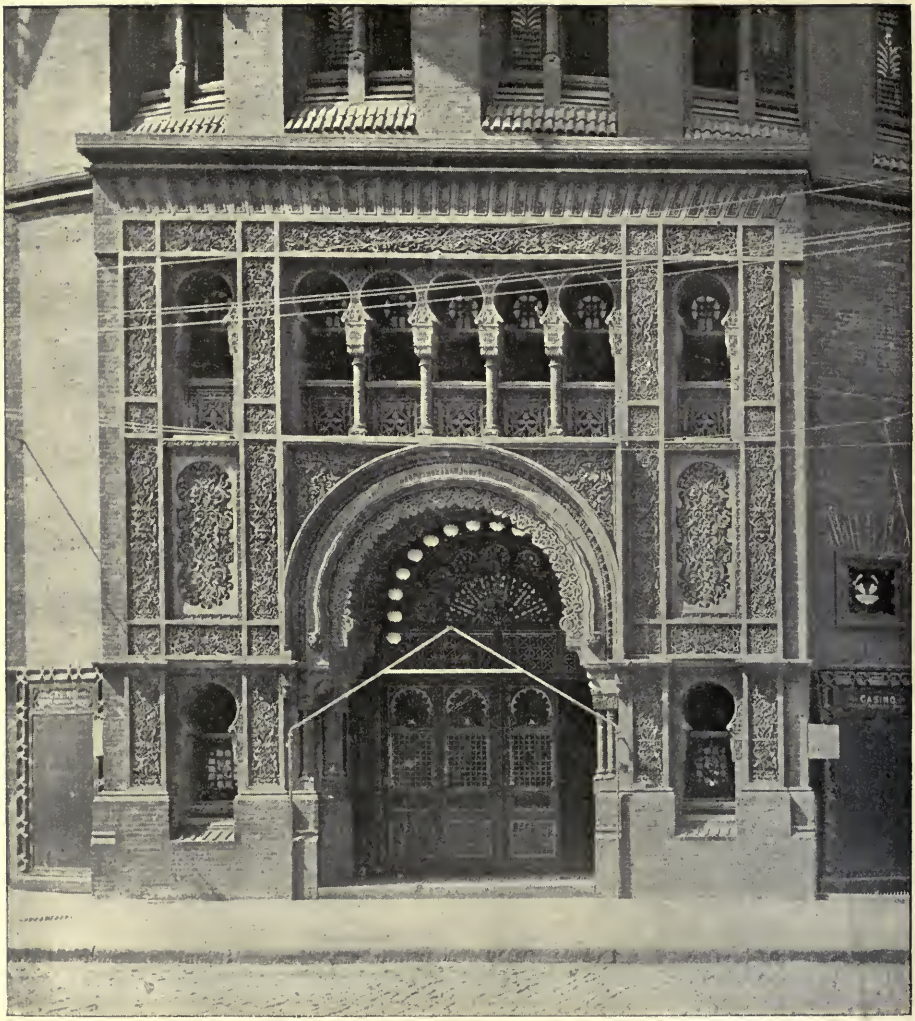
houses when the subject is considered morally and economically. But even could such dwelling places be made popular their success would not improve the character of our tenement-house districts æsthetically—the main consideration here. It would rather injure it, indeed, for even the philanthropist who had determined to furnish quarters for the poor at, say, 2 per cent interest, would not object to making it 3 per cent if he could obtain the advance by pruning away some of the architectural decorations of his building. He would justify himself by the reflection that with the additional 1 per cent he could build more model tenement houses. The rapacious landlord on the other hand will be forced to be a little tasteful for the purpose of making the quarters offered for rent inviting. He will lay tiled floors in the corridors, erect marbled mantels, and otherwise try to beautify his premises. But the model tenement-house landlord can afford to disregard all such meretricious embellishments.

There is probably but one way practicable in this country, or desirable in any country, through which the tenement-house districts can be made to wear an improved architectural appearance, and, without any intention of making an Irish bull, it must be said that that way will be found in abolishing those districts altogether. When the inhabitants of the tenement houses have gained sufficient financial intelligence to prompt them to act collectively, and, making use of insurance as a means of offering security, to become stockholders in their own dwellings, a newly-awakened sense of pride and responsibility will lead them to expend money in the decoration of the homes which may be also the homes of their children. But until that time comes it is probable that the rapacious landlord will be about the best philanthropist, and, architecturally, the most highly-cultivated gentleman, whom we shall meet.

Next, after the influences which control the tenement-house districts in the production of the commonplace in architecture, come the precisely corresponding influences that work mischievously in our mercantile districts. In both districts it is the desire for low rents which compels æstheticism to step to the rear while construction comes to the front. But there is this difference between the two districts. In the mercantile districts there is wealth with the ability to pay high rents, and the desirability of elegant warerooms and office rooms is so great that landlords may find a profit in liberal expenditure. But the temptation that leads to shamming is also great; and the inducement of cheap material throws a powerful obstruction in the way of the architect who would build conscientiously if he was only furnished the means.

This mention of material suggests a broad field for discussion. Next in order after the already-mentioned two causes for tasteless architecture, or the one cause operating differently in different districts, comes the use of bad building material. There are four chief vehicles for the expression of architectural ideas, stone, brick, wood, and iron; and it is in every way desirable, vitally necessary, indeed, if we wish to build well, that we learn to distinguish the different degrees of merit to be found in these various substances.

Wood, probably the first material used in buildings on account of the facility with which it could be fashioned into structural forms, has always remained in common use either for entire buildings or for parts of buildings. In this country it has always been the chief material used for the construction of entire buildings. This statement might not be thought quite true by persons visiting only within the fire limits of our large cities; but if we go abroad through the country districts or visit the suburbs or outlying wards of the cities we shall find the vastly larger number of dwellings, and even of factories and mercantile buildings, built of wood. A farm house built of any other material than wood is the exception save in localities where stony fields almost compel the farmer to pile up the material at hand in the form of a dwelling. Wood has been so largely the



New York City. ENTRANCE TO CASINO. F. H. Kimball, Architect.

(See page 145.)



ENTRANCE TO MORSE BUILDING.

Nassau street, New York City. (See page 144.) James M. Farnsworth, Architect.

building material in the United States that it has modified our architectural ideas both structurally and æsthetically. It would be better to say that it has prevented the development of our architectural sensibilities; and it will properly be the first material to consider when discussing the question of merit in the different substances used in architecture.

It may be said in the beginning that for the expression of the higher language of architecture wood has no merit whatever. The architect cannot ever attempt to give expression to his sentiment of grandeur in wood without becoming in a measure, and in a pretty large measure, too, ridiculous. This is said in the full knowledge that in country towns, and sometimes in our large cities also, one may often see Doric, Ionic, and Corinthian porticos, and even whole façades, done in wood. The Greek proportions are observed; and the Corinthian columns are fluted in strict accordance with the most approved features of the art. But it cannot be said that the display discredits the assumption of absurdity. Such architectural exhibitions are usually survivals of a past generation. To confess the truth, however, they are much more dignified than the erratic Queen Anne cottages that have more recently sprung up in their neighborhood. Were one authorized to apportion the houses of the town among the inhabitants for places of residence we would feel inclined to give the dwelling with the Greek portico, or façade, to the county judge and his accomplished family of grown-up sons and daughters, and one of the Queen Anne cottages to the veterinary surgeon. This would appear to be the most appropriate disposition that could be made of two dwellings both wrong, but the one erring rather in material and the lack of original feeling than in principle. Nevertheless, the error is radical. Those massive columns in wood are too suggestive of sections of the mast of some tall ship to be in keeping with the architectural style of a people who build of stone or marble. They look ponderable and strong, able to sustain the shelf of a mountain. Yet we know that they are light and brittle, and that the load sustained, as represented in the entablature or pediment, is quite inconsiderable. The modern builder is guilty of a double offense. He not only made a too literal copy, or imitation, of the style, but he caricatured the material. His work is suggestive of neither the firmness, durability, nor richness of his model, and those are properties that enter very subtly into our conceptions of architectural beauty and grandeur.

Wood, as a material for exteriors in building, is suitable only for the expression of lightness, an exceedingly questionable architectural quality at best. It is easily fashioned into architectural forms, but to be consistent they must be forms that avoid rather than follow any architectural style. None but a lunatic would undertake to build a Gothic building in wood, though it would not do to say that the task has not been attempted. The same reflection might be made with reference to its adaptability for the Romanesque. The Greek style with its horizontal lintels is more flexible; and custom, as we have seen, has sanctioned its use for imitations of this style. Wood is really a suitable material only for buildings that make no architectural pretensions whatever, and that may be said to be conglomerated by the house carpenter for the purpose of giving protection against the inclemency of the seasons. It may be conceded that a certain measure of elegance has been attained in the construction of wood buildings; but it is an elegance hardly up to the standard of architectural æstheticism. The best wood building ever constructed will look better still when its porches, doorways, windows, and clapboards are covered all over with trailing vines, and it is made to retire behind the veil of a nearly impenetrable green. Thus decorated it may make a very attractive dwelling.

But what shall be said of wood as a material for interiors? Here we stand upon new ground, for the interiors of buildings differ largely from exteriors in the laws that should govern their treatment. Decorative art assumes

greater importance as we pass the portals of a house and enter the rooms and corridors. We cannot, it is true, escape the law of mathematical proportion wherever we go. A square room, notwithstanding the frequency with which it is seen, is less agreeable to the eye than a room prolonged half the dimensions of the square into a rectangular form. A square room having walls just equal in height to the dimensions of the floor is peculiarly offensive, though such proportions are often seen in small rooms. A room with a ceiling too low for the dimensions of the floor, when measured in accordance with mathematical ratios, is still more disagreeable to the eye. Stairs, too, must hold their proper relations to their environment, and interior mouldings, or columns, should be as accurately in proportion as any object of exterior decoration. But the combinations to be taken in at a single *coup d'œil* in any interiors are much less complex than the combinations of exteriors, and proportion, therefore, is less likely to be considered than decorative effect. From the decorative point of view, then, is wood as good a material for interior finish as stone or marble? Is it even as good as some of the substitute materials such as marbled slate, or artificially colored marble?

There is no doubt about the adaptability of wood for the production of decorative effects. The natural grain of some wood is exquisitely beautiful, and the material is easily cut and moulded into shapes that are pleasing to the eye. But just in this facility is the first objection. It is somewhat like terra cotta, too easily moulded, and hence the moulding machine in place of the carver, and stiff, inflexible forms where everything should be wrought out lovingly by hand. Even the wood-carver was once an artist almost in the front rank. He was even more than a mere decorative artist, and had it not been for the perishable nature of the material in which he wrought we might have galleries of his productions still extant instead of the few examples that are preserved in museums. His work could show an infinite variety in the days when wood was the standard building material in Europe, a variety almost up to the level of bas reliefs in marble or marble statues. But he is a factor in the building art no longer. In place of his work we have now merely stereotyped forms never quite up to the standard of even the best decorative art, and rooms are finished by the architect as they are furnished by the upholsterer after patterns that may serve half the country. This surely is an incitement to bad architecture.

Again, interior decorations of wood are not suggestive of durability. They lack the solidity in appearance that marble displays. "Only for to-day" is the legend borne upon all wood mouldings, mantels, or what not of decorative art, and herein they are suggestive rather of fashion than of architectural style. This may not be an objection when we reflect that all really fine art is something to be preserved. It is certain that the legend is true, because we are moving continually in the direction of a higher expenditure in architectural construction, and most of the work that is called fine to-day will be replaced within a period to be measured by the lives of persons now living. It cannot be said, therefore, that the perishable nature of wood as a material for interior decoration should weigh very heavily against its use. Its sins are of another complexion.

Finally, wood interiors are objectionable because they lead to the excess of decoration. Of all the arts architecture should be the most chaste. More than any other art it creates an environment which casts upon our daily lives the reflex of its own character. If it is florid, redundant, superficial, coarse, or sensuous in its decorative suggestions it is a disparaging measure of our civilization, a mirror in which we may see ourselves as others see us and find the reflection not flattering. Architecture should display taste in every line, and interiors should be objects of special study.

But while speaking of the excess of decoration it will be well to define the character of the decoration that is to be condemned. Cost precludes the possibility of carrying certain decorative



New York City. COTTON EXCHANGE. Geo. B. Post, Architect.

(See page 144.)

forms to excess and against this style of decoration, even were there any danger of its misuse, it would not be necessary to file a caveat. Panels executed by accomplished artists may not be strictly decorative productions; yet as they do service in a wall, and bear a relation to general effect and proportion, they have an architectural significance. The same may be said of works of sculpture executed for any purpose co-operative with architecture. These are the kind of interior decorations that will live when wood interior have crumbled and gone. But their coming is delayed by the inflammable material with which we are covering our walls. Our buildings are made so unsafe that it entails the risk of heavy loss when we undertake to decorate too expensively.

But, now, what shall be said with reference to iron as a building material? Were it only a question of the use of iron as a subsidiary material to take the place of wood beams, and the like, very little but good could be said, though we should be forced to deplore the fact that it is such an excellent conductor of heat. Restricted in its use, too, and tastefully moulded, it is not altogether to be condemned for window and door posts where the close grouping of windows and doors is thought architecturally desirable. Then, again, the tornado exposed sections of the West should be able to find in iron something that can be anchored and held down when the winds blow. Iron may have its uses, certainly, and they are many. But its conceded merits are thus far mainly structural; and as this article deals rather with the æsthetic than with the mechanical or engineering side of architecture the question at the head of the paragraph must be asked differently. What shall be said with reference to the æsthetic utility of iron as a building material? Put in these terms it will be possible to discuss the question in language sufficiently explicit, for if there was ever a building constructed in all its parts of iron that was æsthetically good it was not brought to the attention of the writer, and he will hardly be expected to commend what he has not seen.

In the first place the temptation to copy all the vices of wood building is ever present with the workmen in iron, with a further temptation, on account of the greater strength of the material, to magnify those vices. A post that needs to be four or six inches in diameter to sustain its load when constructed of wood might be safely reduced one-half or two-thirds when constructed of iron, and the reduction would be economically a gain to the landlord. Corresponding reflections might be made with reference to every part of a building. The great tensile strength of iron enables the builder to reserve mere figments of wall faces between his apertures. It may be said, indeed, to have almost demolished the wall as an architectural feature in a majority of the examples to be observed along our urban thoroughfares, mere columns and pilasters offering all the support needed for the tallest façades. And such columns and pilasters! The good genius of the designer of stone posterns must have presided at their conception and wrought industriously in their execution. Indeed, to such an excess is this reduction in material carried that men who profess to build of iron, or to build iron fronts, are building mainly of glass and using the iron as a foil to cover their deception. The iron parts of the building are merely an ugly frame work to hold the windows and glass doors in place. The wall, so elaborately and lovingly designed in ancient structures, has disappeared, and in its place we have façades composed chiefly of windows and glass doors.

Now this might be an advantage to architecture were we building conservatories; but as we are building nothing of the sort for mercantile uses our iron fronts are constructed in contempt of architecture. As already suggested even the little of iron that they contain is hopelessly tasteless in design, conceived in a spirit on a level with only the lowest of decorative art. Were our iron builders to study utility only, and leave out their imitations of architectural decorations true art would be greatly the gainer. It would no longer be caricatured, and the mis-



DE VINNE PRESS BUILDING.

Lafayette place, New York City. (See page 148.) Babb, Cook & Willard, Architects.



SCHERMERHORN BUILDING.

Broadway and 4th st., New York City. (See page 148.) Geo. B. Post, Architect.

chievous influences of caricatures on popular taste would be withdrawn.

What has been said may sound like a complete condemnation of iron as a building material for anything more than structural use in places where it is entirely hidden from view. But it is not intended that the condemnation shall be so sweeping. It may be that the architect for iron buildings has not yet come. It may be that like the architect for wood buildings, he can never come and bring a head full of very grand ideas. Iron is equally with wood unsuitable for the expression of the highest æsthetic sentiment, and this stricture must remain valid even when it is fashioned into a mere imitation of the forms of brick and stone. Conceive of the Equitable Life Insurance Building transformed in its interior from its costly colored marbles and polished stone into an iron finish decorated by the house painter and gilder after this conception, we may have some idea of the hopeless inferiority of iron as a material suitable for the representation of the beautiful. But it is idle to make any conjectures on the possibilities of iron when an attempt is made to fashion it in imitation of brick and stone. No conscientious architect would make the attempt, and were it made only the coarser forms of the models could be imitated. But may not iron, after all, have something higher than a merely structural place in the building of the future? It will not be worth while to ask if it can have a higher place in the strictly æsthetic building of the future, because the question has been answered negatively in the context.

There can be little question but that iron could be made an available building material for cottages of the class that are now built of wood, and were it not for the greater cost we should long since have seen it largely made a substitute for wood in this kind of construction. But the day may come when the cost will be more nearly equalized, and then, in the language of the athlete iron may have its inning. The processess of its manufacture are much cheaper than the processes for manufacturing wood, and this would give it an advantage after the lumber forests have disappeared. It is more flexible than wood, too, for moulding into those decorative forms which are thought pretty in cottage architecture.

But, this is a speculation in futures which is hardly fair dealing. Before iron can enter the field as a competitor for cottage building contracts, wood must be abandoned. This only we know for certainty. The use of iron as a material for exteriors in building or for visible interiors has had a mischievous influence on the architectural development of the period. We even observe a disposition among architects who make plans for brick and stone structures to give more space to apertures and less to wall face than was thought either tasteful or prudent a few years ago, and this practice does not represent an architectural advantage. It is a sign rather of corruption and decadence.

We find, then, in want of resources and the use of bad material the first two causes for bad architecture. They should be sufficient without any supplementary influences to account for the greater part of the unsatisfactory building that we see whenever we walk along the streets for a distance, even no greater than the length of a block. But there are other causes, some of which are also moral and structural, and then, again, there are still other causes that are purely æsthetic.

A common cause for architectural failures, greatly deplored by architects, is the interference with their plans on the part of building landlords. Much that is unsightly in design and defective in arrangement is directly charged to this interference; and it is probable that the architects who build for the market on plans made in advance are the only men who are quite free to follow their own tastes and suggestions. It will hardly be worth while to say that it is a very foolish practice. An architect must have studied his profession to very little purpose if he does not know better than any layman the best use that can be made of the resources at hand. Exceptional cases may be found in the construction of

factories, and sometimes of mercantile buildings, where special needs which no architect could be expected to thoroughly comprehend must be met. But a building landlord who would interfere with an architect for the purpose of securing greater convenience in his dwelling, or for any modification of its architectural appearance, shows more self-confidence than good judgment. Yet it would probably be useless to enter any protest against this practice of interference. Architects are just as plenty as employing landlords; and were any one of the designated fraternity to set himself too vigorously against the intelligent dictation of his patron he might be discharged for a conceited coxcomb The alternative cognomen for conceited coxcomb might be blockhead. The architect might be arraigned for a stupid fellow on account of his inability to appreciate a good idea when it is offered gratuitously.

But not all the bad architecture is due either to the poverty of resources, defective building material, or divided counsels. There are a great many bad architects just as there are bad painters, bad sculptors, bad poets, and bad musicians; and it is our misfortune that the bad architect has the power of placing his work so conspicuously before our vision that we cannot fail to observe it no matter how persistently we try to close our eyes. To the studio of the bad painter we need not go, and the chances are that his work will not get into the houses of any of our friends if we keep good company. The bad sculptor is somewhat more obtrusive. He may even drive us from the mall in Central Park if we seek to pass beyond the ideal Shakespeare at the entrance. But he can compel only a slight detour when we wish to escape the misshapen images that he occasionally finds an opportunity to set up. As to the bad poet we need not read his works, and the bad musician, passing us with a blare, is rarely heard again. But the works of the bad architect are set up along highways which we may be forced to pass daily, and sometimes several times each day, and the eye cannot help but rest on his ugly structures.

Again, there are many architects who are not altogether bad, but who lack comprehension and comprehensive training in their profession. The architects who conceive decorative art to be the chief end of architecture are legion, and no amount of money placed in the hands of such men will ever secure good building. The larger their resources, indeed, the worse will be their achievements. An architect with the United States' Treasury at his back built the New York Post-office. It is easy to expend millions on work that will only help to make the decorative details a covering for architectural deformity. A thoroughly trained and meritorious architect would do more for art with one hundred thousand dollars than a bad architect would do with all the money that could be put in his possession, unless, indeed, he had the good sense to employ the good architect to take charge of his work.

There are various causes, it will be seen, for bad architecture; and not the least disagreeable of the reflections suggested by this fact is raised by the certainty that men can never look to see it all banished from public view. Could we reconstruct Athens as it existed in the days of Pericles we should no doubt find many very ugly structures to one Parthenon. The productions of men of supereminent ability are the only works that live in either material or history. But the very word supereminent means that the great mass of art producers are gifted only with mediocrity. They are imitators and copyists rather than the creators of fine combinations. Yet they have not even learned to use the rule and compass with any true estimate of their comprehensive utility, and it follows that their works are not contributions to really æsthetic production.

The best that we can do is to increase by careful training the number of the supereminent, and to curtail as far as possible the operations of the uninstructed and incompetent.

Wm. Nelson Black.



43d street, New York City.

RACQUET CLUB.
(See page 145.)

C. L. W. Eidlitz, Architect.



Detail from the Myth of Osiris, showing lotus.

"THE GRAMMAR OF THE LOTUS."

AN ANSWER TO CRITICS.

I.

I HAVE been requested by the editor of THE ARCHITECTURAL RECORD to prepare for his readers a summary of my conclusions regarding the origin of classic ornament as recently published in my "Grammar of the Lotus."* Its expense, size, and technical form of presentation all tend to make this work somewhat difficult of access to readers who are not professional archæologists. Moreover, since its publication, I have been complimented by an extraordinary number of reviews, largely of a favorable character as regards the main features of the work, but in certain cases taking issue on important points, which require consideration and answer.

These reviews have been of great service to me, as making me aware of those objections to my positions, which would naturally occur to non-specialists in general, and I have consequently undertaken to furnish in a series of papers a more popular presentation of my studies on the evolutions of the lotus, written out in such a way as to meet the objections which have been raised.

There is a great deal to be learned about my work from a summary of the verdicts passed upon it, and as far as these are known to me I shall mention or quote from a number of the more important. I should say that the main thing to be gathered from this summary is that the facts presented were not previously very largely known to the gentlemen writing the reviews.

The New York *Independent* and the London *Saturday Review* have passed a verdict of wholesale condemnation. According to the *Independent*, my work belongs to "a class of studies in art which are unchecked by scientific

* "The Grammar of the Lotus—A new History of Classic Ornament as a Development of Sun Worship." Sampson Low, London; Dodd, Mead & Co., New York. Price, $15.

principles and reach visionary results." According to the Boston *Literary World* "every chapter bears witness to the careful scholarship and the judicial spirit of the author." According to the *Saturday Review*, I have advanced "a collection of theories of the most novel



Altar with the Lotus.

and amazing character that it has been our lot to encounter within a long time." According to Dr. E. B. Tylor, in the London *Academy*, "there is no question as to the solid value of his evidence on the development of ornamental design." According to the New York *Independent*, my knowledge of botany is at fault. "The sepals of the water-lilies of the Nile do not become reflexed and never did." According to the botanist employed to catalogue the ancient Egyptian specimens of the museum at Kew: "I have often seen the sepals of the white water-lily (*Nymphæa Lotus*) curl over when the flower is fading. . . . The blue water-lily (*Nymphæa Cærulea*) also curls in the same way." According to the New York *Independent*,* "one of the most unfortunate failures of Mr. Goodyear is his determination to make out the papyrus to be a lotus." According to Mr. Cecil Smith of the British Museum, in the London *Graphic*: "The papyrus, which has always been held up as the origin of much Egyptian ornament, is effectually disposed of." Dr. E. B Tylor, in the London *Academy*, also takes issue with my views on the papyrus. According to the New York *Tribune*: "Until it can be shown that the papyrus has a history of its own, covering all the gradations between copying from nature and a stage of conventionalism about as far removed from nature as anything on earth can be, Mr. Goodyear's argument will stand unshaken." Mr. Cecil Smith in the London *Graphic* accepts in bulk my views on the origin of Greek ornament as "a very useful contribution to art and archæology," but deplores the fact that I "have been led astray into the trackless waste of symbolism;" whereas the New York *Nation* says: "The theory that the lotus was a sun-symbol and that it carried its symbolism into the art of many countries is well sustained in the argument of the book." The New York *Independent* says that "throughout his work Mr. Goodyear employs a principle, almost a formula of argument, which is extremely fallacious and in most cases misleading." The New York *Evening Post* says that "the reasoning is close and acute . . . the 'Grammar of the Lotus' is a notable contribution to literature, written with a tenacious grasp of its



Head-dress with solar disk, supported by the flower.

subject, with keenness of observation and clearness of statement." Dr. Tylor, in the London *Academy*, says that "the author's imagination fairly flies away with him" in the matter relating to the associations of the lotus with the solar

* Review written by Professor Paine of the Metropolitan Museum of Art.

bird and solar deer. The New York *Tribune* says on this special point that "the testimony of the plates carries conviction with it." Dr. Tylor accepts unconditionally my view of the egg-and-dart moulding, but appears to hesitate about the Ionic capital. The New York *Christian Union* says of the egg-and-dart moulding: "We confess that we do not feel convinced," but remarks that "the evolution of the Egyptian lotus into the Ionic volute is conclusively and ingeniously made out." The New York *Independent* says of "the Ionic capital hyphothesis:" "His whole elaborate theory has absolutely nothing to rest upon;" and the *Nation* says: "The derivation must, we think, be accepted." The *Christian Union* and the *Nation* raise doubts about the rosette, but Dr. Tylor appears to consider my matter on the rosette the most important portion of the book: "The part of the book which strikes me as best, is that which treats of the Egyptian rosette." The *Independent* says of the voluted lotus on Cypriote pottery: "No amount of assertion that the Cypriote plant is a lotus will ever make it such," and the New York *Critic* says: "In the archaic art of Cyprus and the Ægean Islands he has, we think, fully established his position." In 1888 the *Critic* said of my theory of the Ionic volute: "It cannot be accepted at all." In 1892 the *Critic* said: "The egg-and-dart moulding, the Ionic capital, and the Greek anthemion may have been developed out of it" (viz., the lotus). The *Nation* says of my matter on the lotus in Ancient America that "the argument proves too much." The *Tribune* says that "Mr. Goodyear's remarks on lotus forms in America, including the Swastika, with the illustrations which he gives, will help to remove some prevalent notions about the spontaneous generation of folk-lore and myth."

The most serious charge of all has been brought against me by the *Independent*. I have been accused of entering into a contention with the Bible on the subject of pomegranate ornament. "This new doctrine conflicts with the direct testimony of the Scriptures." I am not able at present to find any quotation among other reviews which will clear me from this afflicting charge. I can only cite a passage in the *Christian Union* which proves that a religious Weekly has been guilty of the same dangerous heresy: "Perhaps the sacred lotus of the Nile suggested also the bells and pomegranates [of Solomon's Temple]. Certain it is that the lotus of conventional Egyptian art is bell-shaped and the pomegranate of ecclesiastical art resembles the ovary of the lotus as it is bursting."

I think the above quotations will show that my critics are not entirely agreed among themselves, and when critics disagree I know of no refuge but the general public. The fact is that my positions are all intact, that in fifteen years all my main results will be accepted axioms of science. Meantime let us see what can be done toward a popular presentation of the subject. It is not only archæologists or professional specialists whose interests are involved. The whole question is one for all who are interested in the subject of Evolution and in the Darwinian Theory, and that is to say for most cultivated people of our day. I have personally found in Professor Youmans a most interested listener, and I believe that Anthropologists and students of natural history, from a Darwinian point of view, will find much to interest them in the history of pattern ornament. My elementary proposition is that primitive man naturally makes a picture before he makes a pattern. This proposition is supported by the fact that the spirited drawings of natural forms, on bone and ivory, of the Palæolithic Epoch, are the earliest designs known to the history of our race. According to my view, abstract or conventional patterns are evolutions from pictures. My proposition is that abstract or geometric patterns are, as such, initially foreign to the habits of barbaric or primitive man. In other words, I have asserted for conventional patterns what has been already proven for the letters of the alphabet. These are now known to have been derived from hieroglyphics which in their turn are derived from pictures. A pattern is originally a re-

peated hieroglyphic, arrested at the pictorial or symbolic stage of picture writing and preceding in natural order the evolution of the phonetic sign.

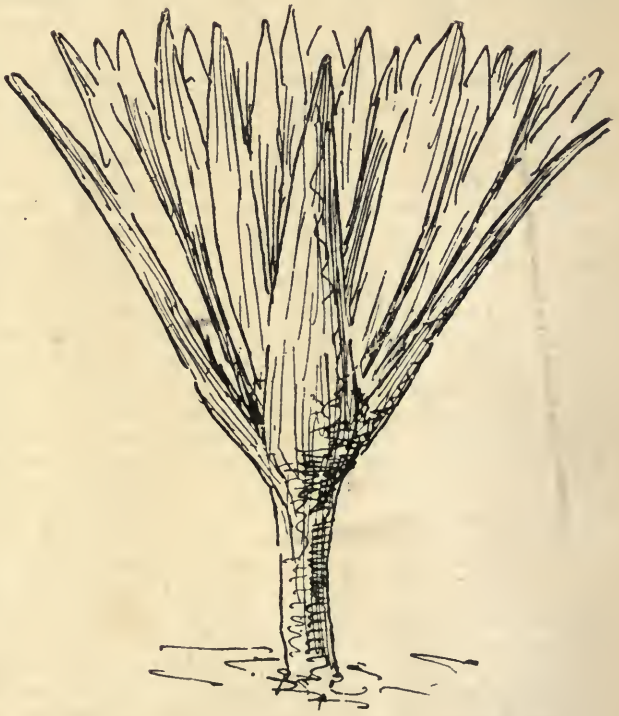
The importance of picture writing (which is really symbol writing) for primitive man is naturally overlooked by moderns who are not anthropologists; but it has been suggested by some evolutionists that writing by pictures even preceded the use of language as being a more natural means of primitive communication, and it is well known that the gestures which assist so much the speech of barbaric man, and which naturally would have preceded speech, are all pictorial in character.



Egyptian Blue Lotus, from Nature, showing sepals curled over.

II.

It is not unknown to persons of average culture that the Egyptian water-lily was a flower and plant of great vogue and popularity in the land of the Nile. It is a popular error, however, which I have noticed also in the expressions of professed critics to suppose that the plant grows in the river itself.* It is, moreover, as far as Egypt is concerned, a plant almost unknown by sight to modern travelers, for it is now confined to pools in the Nile Delta, a portion of the country not much visited by tourists. In ancient times it must have been common throughout the country and was undoubtedly artificially propagated as a food plant, for there



Egyptian Blue Lotus, from Nature, showing three sepal spikes.

* See, for instance, my critic of the "New York Independent," June 16, 1892.

are two distinct water-lilies, both known by the name of lotus, whose seeds were used by the ancient Egyptians for making bread.

It is in the Egyptian art of our museums, in the painted pictures of Egyptian tombs and on the sculptured walls of the temple ruins that the great vogue of the flower becomes apparent, and let it not be forgotten that all art in ancient Egypt was religious in use and in significance. Among the enamel amulets (or mystic charms) placed in the tombs the lotus makes a frequent appearance. On mummy cases it appears constantly. On the tomb ceilings of Thebes it is the element of many decorative patterns. In the temple of Denderah the wall surface of every interior apartment is paneled to the height of the waist with patterns of the plant. Every column in the temple at Esneh is decorated in similar fashion. The Egyptian capitals which represent the water-lily flower and bud are familiar illustrations.

The location of all the lotus ornament above mentioned is sufficient proof of its religious meaning, but this meaning is also mentioned by many hieroglyphic texts and by several classic authors. Moreover, this meaning is familiar to Hindoo literature and Hindoo art, and it is even known to the Theosophists of our own time. I once met a distinguished member of the sect to whom the symbol was so sacred that he avoided conversation on the subject. There is a French Theosophist journal which is called *Le Lotus*.



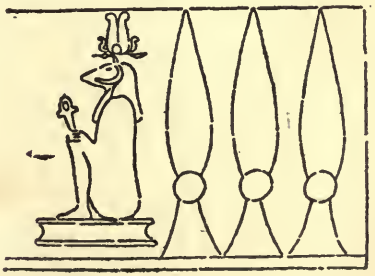
The Lotus as mystic form or habitation of the departed spirit.

The most generally recognized meaning of the lotus symbol is creative power or "life," an idea associated with resurrection and consequently with the tomb, but there are no peoples known, to whom this plant was sacred, who were not sun-worshippers, and there are no such people known to whom the lotus was not a symbol of sun-worship and finally of divinity in general. Both the Hindoo god, Brahma, and the Egyptian god, Horus, were conceived as rising from a lotus. The pictures of Horus rising from the lotus (apparently seated on it) are familiar to every Egyptologist. We know that the Egyptians conceived the sun (and other heavenly bodies) to have been evolved from vapor or the watery element (a conception which reminds one of modern scientific theories as to the originally gaseous form of all matter). Plutarch tells us that they painted Horus on the water-lily to represent this idea regarding the birth of the sun from moisture. The Brahmans have a similar theory regarding the symbolism of the lotus (see Blavatsky, "Isis Unveiled"), and it is, moreover, the most noted religious symbol of the Buddhists.



Youthful Horus on the Lotus.

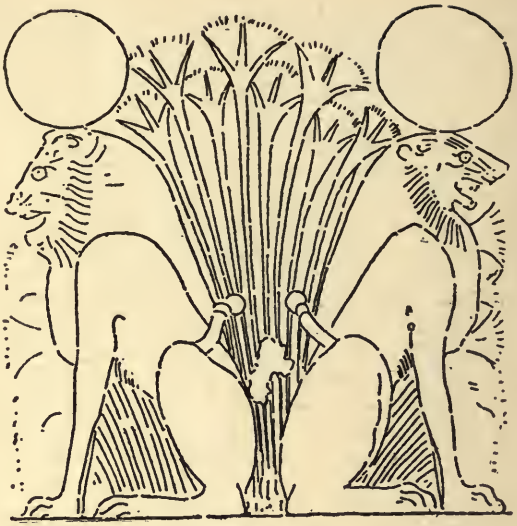
At all events, both texts and religious pictures inform us very explicitly as to the sacred character and meaning of the flower and its plant in Egypt, and I have collected some of the obvious cases of its association with acts of worship; with Egyptian gods, and with funereal rites or superstitions in the text-cuts herewith. The appearance of various birds, animals and reptiles



The Ram (God Khnoum) and the Lotus (buds).



Osiris (the Sun in the lower world) before altar with Lotus.



The Sun lions, Ra and Osiris, supporting solar disks in the Lotus bower.

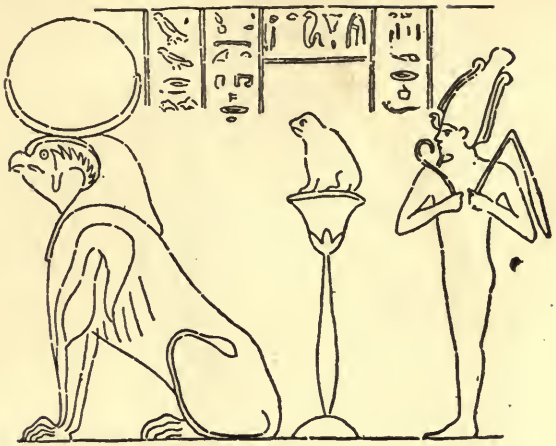
in these illustrations deserves a word of explanation, which may be extended to include a mention of some leading deities of the Egyptian Pantheon. Osiris is the sun of the lower world during its supposed return beneath the earth to the dawn of a new day. Hence he is peculiarly the god of this world of departed spirits, the god of the Resurrection and of the mummy. Therefore we find him frequently in the guise of the mummy. Horus is the son of Osiris. He is the sun of the day in general, but the dawning sun and the rising sun more especially. This is why he appears as youth or infant. The winged sun-globe which surmounts the portal of every Egyptian temple is another form of Horus. The wings of the globe are the wings of the hawk, who was sacred to the sun on account of the swiftness of his flight and of his shining eyes. Horus frequently has the head of a hawk, like



Tothmes III offering Lotuses and Geese to Ra (the Sun).

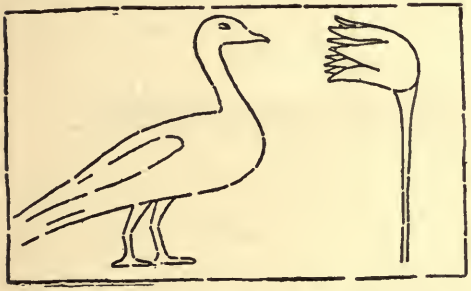


The Sun Hawk on Lotus.



The Frog (goddess Hek, Hyk, or Heka, and god Khnoum) on Lotus, with Osiris and Gryphon form of Horus.

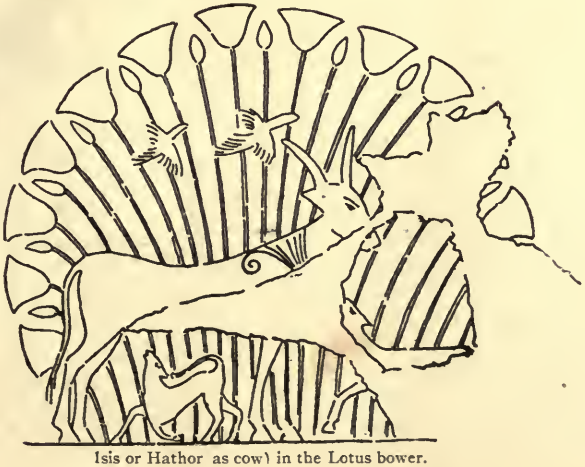
the sun-god Ra, who appears in the same way. Horus also appears as a hawk entire, as a lion and human-headed lion or Sphinx, and as the gryphon combination of solar hawk and solar lion. The goose is sacred to a god named Seb, styled the father of Osiris, to Osiris himself, to Horus and to Isis. This goddess was the spouse of Osiris and mother of Horus. One of her forms was the fish; another was the cow. Isis personifies the moon and the fertility of the earth watered by the Nile.



The Goose Seb, Osiris, Horus, and Isis) and the Lotus.



Fish (emblems of Isis) with Lotus.



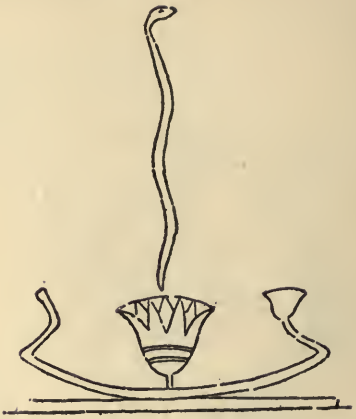
Isis or Hathor as cow) in the Lotus bower.



Bull with Lotus amulet.



The Asp and Lotus.



The Serpent and the Lotus in the Solar bark

The bull, lion, asp and serpent were all sacred to various solar gods. purpose. As regards the animal forms, it will be understood that they are in



The mummy and the Lotus, from the "Book of the Dead."

The gods Ammon and Khem are equivalents of Osiris. The ram is a form of Ammon, who appears also with the ram's head. Finally, we have the funereal significance of the lotus, as sign of immortality, illustrated in the quaint figures of the Genii of the Dead standing on the lotus, from a picture of the "Last Judgment"), and in the human head resting on the lotus. This design is found in illustrated copies of the "Book of the Dead," and belongs to the chapter which relates to the lotus as one of the habitations of the blessed dead. We have also the mummy in its sacred barge confronting the water-lily. The god Toum is the setting sun and appears crowned with the lotus.

I have only specified the Egyptian deities whose own forms or equivalent sacred animals appear in my illustrations, but they are sufficient for my



Nefer-Toum (the setting sun) crowned with Lotus.

every sense equivalents and representatives of the given deities. That these animals were originally themselves



Sphinxes and the Lotus.

totem gods is probable, but in the development of solar worship which the Egyptian religion had reached when first known to us they had all been assimilated with solar gods. Hence in each illustration specified the lotus is an equivalent and additional symbol of divinity in general, of the sun, of the resurrection and of creative power. All these ideas were interchangeable or present at one and the same time.

III.

I am not responsible for the great vogue of the lotus in ancient Egyptian ornament. The facts which I have proven for the history of Greek art have, however, an appearance of extreme improbability until this vogue is appreciated, and for the benefit of those who have no time to consult the folio publications of Egyptian antiquities it seems advisable to explain it. The following facts are elementary.

Oriental nations and barbaric nations do not make pictures unless they have a meaning to convey or an idea to express. Pictures for the sake of the picture itself as a "work of art" are unknown to them. Orientalists are well aware that all the so-called decorative art and decorative patterns of Chinese, Japanese and Hindoo art are connected with religious or symbolizing uses and originally derived from pictures. The facts about primitive or Oriental humanity which we so clumsily express to ourselves by the word "symbolism," simply go back to pictorial methods of expression which are natural and necessary to peoples which did not know printing, to whom literary expression was foreign, clumsy, or difficult, and whose imagination was child-like and vivid. To the savage and the primitive man the picture or image has a magical quality.* There is not one line on the most ordinary piece of Zuni pottery which has not magical significance to the maker. The picture or image is supposed to retain the qualities and the powers of the original.† We have the authority of Maspero for the assertion that in Egypt every picture painted on a piece of furniture, a utensil, or the wall of a house, was a talisman endowing the object with the mystic power of the original. We must then for the moment move back from the picture to the original—that is, to the phenomena of fetichism.

Animals and plants are to primitive man mysterious and magical creatures — gods or the dwelling places of gods, and furthermore endowed with human intelligence and faculties. The plant is not less a living thing than the animal‡, may therefore like the animal be a dwelling place of a god, or of a transmigrated man§ who is or may be himself a god.

Given the above elementary facts and we understand why an Egyptian museum is a collection of mummied cats, of wooden hawks, of small bronze bulls and of porcelain beetles. Among the various forms of life conceived as habitations, counterparts and representatives of divine power, the water-lily was to Egypt of peculiar importance, and its picture or simulacrum, according to principles stated, carried with itself the mystic power of the plant itself. The fertilizing power of the Nile water and of its slime was the most important fact in Egyptian daily life, and therefore in Egyptian Cosmogony. All created things were con-

*See Frazer's "Golden Bough."

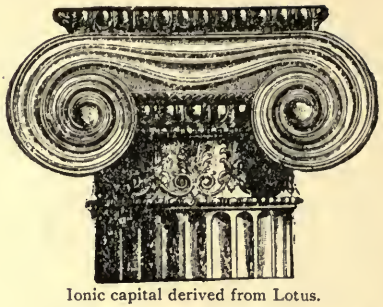
†Hence the magical use of small images of persons who are tortured or killed through the image—an art known to the negroes and to the Middle Age.

‡Frazer's "Golden Boughs."

§See Frazer's account of the Turtle clan among the Zunis.

ceived to be an offspring of this primeval slime or of its watery basis, and the lotus was "the flower which was in the Beginning, the glorious lily of the great water." The sun, which was worshiped as the greatest of gods, was also believed to be an emanation of moisture. Therefore, the water-lily was its counterpart, its sacred flower, its divine sign—laid on the altar of every god, given to the guest at the funeral, buried with the mummy, painted on the tomb, carved on the temple. It is not I, but the Egyptian, who was the monomaniac, the enthusiast, and the man of one idea. For my own part I have several.

All this, it may be said, that you have told us is an argument that destroys itself. The lotus was great but it was not almighty; were there then no pictures of lions, or of asps, no images of beetles? Were there no other sacred plants? How, then, can the lotus alone be the basis of all Egyptian decorative art and the pattern of all the forms of Greek ornament. To this I should answer that I have never asserted all Egyptian patterns or all Greek patterns to be derived from the lotus, although this has been supposed by several published criticisms. I have proven, or attempted to prove, that certain patterns are lotus derivatives, but I have left it to my critics to specify the origin of those patterns which I have omitted to mention. In my book I have made no general assertions denying the existence of patterns not derived from the lotus. There is in my book no summary of facts to be proven and no recapitulation of conclusions drawn. Each chapter stands by itself and each chapter has a different topic. It may appear that when the volute, spiral scroll, concentric



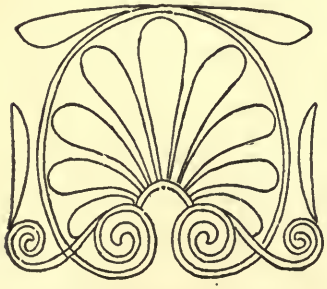
Ionic capital derived from Lotus.



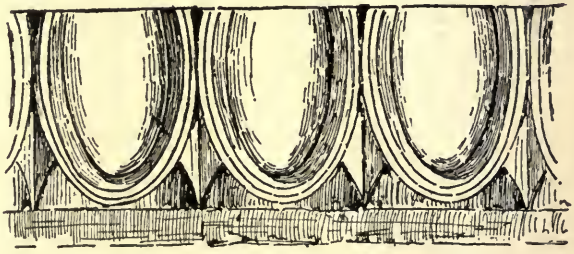
Typical Egyptian meander derived from Lotus.



Spiral Scroll derived from Lotus.



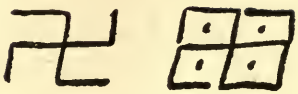
Greek Anthemion derived from Lotus.



Egg and dart moulding derived from Lotus.



Egyptian tomb spiral.



Swastika diagrams.

rings, meander, rosette, "honeysuckle," "ivy-leaf," and egg-and-dart moulding, have been specified—there is not much left—but this is not my fault. It is the limitation of Greek art, not I, that is to blame.

The odd thing is that I could have reviewed myself much better in an adverse sense than any of the critics who have antagonized a position I have not taken; supposing that I had taken it. Some of my reviewers appear to have been limited in their knowledge of Greek and Egyptian ornament to the patterns described and illustrated by my book. Regarding prehistoric ornament in general (Ancient American, Polynesian, etc.,) the following passage will be found in the "Grammar of the Lotus" (p. 373): "It is by no means assumed that the naturalism which invaded ancient ornamental art as early as the fourth century B. C. has not had also an influence of a widespread character. Nor is it assumed that a Dyak, for instance, does not, from his own motion, supplement the patterns which have been in question, by others drawn from naturalistic instinct or his own peculiar symbolisms. The position taken is simply that the civilization which first perfected pattern ornament had so high a degree of development in very early times, as compared with any other, that it has insensibly affected all, first by its civilization, second by the patterns which went with it. It is a matter of historic fact which is in question, a matter of fact to which the history of the alphabet offers surprising analogies and which the history of the alphabet largely explains." In the discussion of prehistoric and (supposed) barbaric ornament I have confined myself to four patterns — the chevron, concentric rings, the spiral scroll and the meander (of which I have proven the Swastika to be a section). It is true that these are practically the only patterns of Prehistoric Europe, but here again the limitation is not one for which I am responsible. If I were to assert that all known liqueurs are made in Europe, it is no argument to reply that the assertion is improbable because whiskey is made in America. The fact is that the limitations of conventional pattern ornament are of so peculiar a nature that they offer a very strong argument in behalf of my positions, but these limitations also appear to be unknown to my adverse critics, and it is useless to ask them to account for a fact of which they are ignorant.



Melian spiral scroll.

To return to my demonstrations for Greek ornament, I will again admit that the Ionic form, spiral scroll, meander, rosette, anthemion, "ivy leaf," and egg-and-dart patterns (with its variants), cover most of the ground, and I am positive that in fifteen years there will not be found one archæologist who will not admit that they are all lotus derivatives—but there are two points to be made here against my adverse critics. First—the limitation of Greek ornament to certain elementary forms, from which all others are evolutions, is a very peculiar fact, demanding an explanation, which explanation has not previously been offered. Second, not one of my adverse critics has brought me to book for my omission of the so-called "acanthus leaf" from the list of Greek patterns—no one of the persons assuming that I had claimed all Greek patterns to be lotuses in derivation has called attention to the profusion of these "acanthus" patterns in later Greek ornament. This was about the only criticism that I expected on my chapters for Greek art, and it is the only really serious one that could be offered. I omitted the "acanthus"

from the "Grammar of the Lotus" because I did not reach a satisfactory solution until the work was in press. I will now announce the apparently impossible fact that the evolution of the acanthus motive was by way of the egg-and-dart pattern and I will furnish the demonstration in another paper. I omitted the Corinthian capital from my work because no solution of its problem which does not include the acanthus would be satisfactory, and I will say here that various suggestions that the Corinthian capital is a lotus derivative, which have been made by other students,* must be considered premature until my acanthus demonstration has been published.

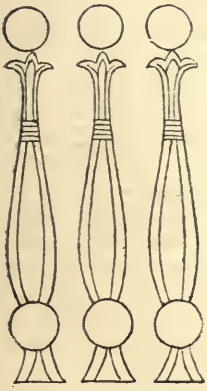
I have apparently moved away from a point to which I am really returning. It has been assumed by some critics that I have announced the lotus as the basis of all Egyptian patterns.† Now I have not announced the lotus as the basis of any pattern which has not been published in my book. There are a number of diaper patterns which I have not published, although many or most of them might be included as lotus derivatives by a person willing to carry assertion further than proof, which person I am not. Yet no one of those assuming me to have taken a position I have not taken, has used as an argument against me the existence of the star pattern in Egyptian ceilings, which is positively not a lotus. No one has specified against my assumed position the ceiling pattern of grape bunches and vine leaves at Thebes. Furthermore, no one has urged against my assumed position that patterns of "anks" and "tats" are fairly frequent in Egyptian art and projected asp patterns very frequent. From which I argue two things—that some reviewers have not read my book very carefully and that they were willing to accuse me of being an extremist without knowing themselves much about the subject of patterns—or, in other words, that they did not know much and what they did know they learned from me in too great a hurry.

Now I am prepared to come back to the initial objection. Admitted the significance of the lotus and its symbolic use in Egyptian ornament, how can we account for the exclusion of other symbols from pattern ornament. Answer first—other symbols were not excluded, although they were not nearly as common and none of them are known to have influenced the Greeks or the prehistoric nations.

I will pose a second answer by putting another question to my assumed antagonist. Why is it that when the lion, bull, ram, cow, serpent, asp, cat, crocodile, ichneumon, ibex, gazelle, fish, hawk, goose, ibis, vulture, heron, cynocephalus, jackal, dog, scorpion and beetle (scarabæus) were all solar or divine animals, representing deities whose worship was more or less equally popular in Egypt—that the enameled clay and stone amulets of the scarabæus outnumber the enameled clay amulets of the other animals named *all added together* by the proportion of about ten thousand to one. One answer certainly is that the form of a beetle as represented with closed wings can be fairly copied in enameled clay without any mechanical difficulty. It is oval above and flat below and can be moulded easily. These amulets are very small and it is much more difficult to make a small clay lion, hawk or bull, and the object would be much more fragile when made. Then, in the next place, the Egyptians were extremely conservative and absolutely tied down by tradition. They never did anything which they were not in the habit of doing, to put the matter in an Irish way. This answer appears sufficient in most cases. In other cases—for instance, the fish—we are able to say definitely that the symbol had not nearly as great a vogue. On the other hand, the beetle is almost, if not absolutely, unknown in bronze, in which material most of the animals above named are very frequent. Scarabs are unknown in wood and so are serpents and lions. Wooden hawks are very common. Now to give an

*For instance, by my reviewer of the New York "Nation," and by Professor Allan Marquand, of Princeton.

†For instance, by the New York "Critic," which in general passed a very favorable verdict on my work—"It is not too much to say that Mr. Goodyear has put a new complexion on the whole subject"—and by the New York "Nation," whose notice was highly complimentary in all senses, although questioning a number of my positions.



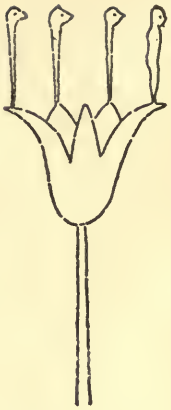
Lotus Colonettes.



Isis crowned with Lotus.



Solar Disk on Lotus.



The Genii of Amenti on the Lotus.

explanation is not always possible but the fact is there. And the fact is; as small amulets (amulets proper) are largely confined to enameled clay; that the scarabæus is *the* typical Egyptian amulet for animal forms. It may easily be conceded that its vogue was also much greater. (It was especially an emblem of the god Ptah of Memphis). Now what holds of the scarabæus in amulets holds of the lotus in surface patterns, but to an enormously greater degree. The lotus was not only an emblem of one god, but it was an emblem of all. It is found also as the counterpart and equivalent of every sacred animal mentioned, which again enormously increases its ascendancy or repetition. It also appears on nearly all pictured altars of offerings, however varied the other offerings may be. To explain the general frequency of the lotus picture we may suggest also that it was a fetich of greater antiquity or greater popularity than most. That it was more popular is certain, and it has been a symbol with nations like the Hindoos and Japanese, which in other respects show no trace of Egyptian influence. This points either to a high antiquity of lotus fetichism with a race from which both Hindoos and Egyptians sprang, or else it points to an influence of Egypt on Hindoostan by way of Assyria and Assyrian lotus patterns. In either case the resulting argument is the same. If the Phenicians and Assyrians show so many traces of lotus worship when in other respects they were less obviously Egyptian, this again must point to the fact that a foreign influence is most apparent in what was most peculiar to the race having the influence—or else the fact again points to an earlier community of race. Now, in the case of the lotus for surface pattern, as in the case of the scarab for amulets, the fact is there, explain it as you will, that its ascendancy as regards amount of use and repetition is simply phenomenal.

But the main point appears yet in reserve. I have observed that some people do not sufficiently consider what fact is involved in the distinction between a picture and a pattern—the fact, namely, of indefinite repetition. An artist would scarcely attempt an indefinite repetition of pictures of lions or rams; the effort is too laborious, because the picture is too complicated. On the other hand, the repetition of lotus flowers, lotus buds, lotus leaves, or lotus rosettes is easy. Patterns grow: they are not made; and they grow from what is repeated. The question may then be raised, why not other flowers and plants beside the lotus? I answer, that is the affair of the Egyptian priests, not mine—invent your own explanation. If you care to accept mine, here it is. There does not appear to have been any plant which was as significant or as sacred as the water-lily (the reasons for this significance have been mentioned), and

nothing was tolerated in Egyptian art that was not significant and sacred.

From a contrary point of view the New York *Nation* says: "We see in their ornament, for instance, a variety of campaniform flowers, of very distinct types, carefully discriminated. They had undoubtedly a great variety of such flowers before their eyes in nature, and while they gave the lotus pre-eminence it is easier to believe that they took their decorative material where they found it than that they laboriously travestied their sacred symbol into such various and uncharacteristic forms as are ascribed to it." It is the theory and habit of modern decorative art with which the reviewer has here mentally endowed the Egyptians in his own fancy. This use of "decorative material" so natural to us and so matter-of-course to the mind of a modern reviewer was foreign to their stern and solemn fancy. The Egyptians did not "decorate"—they painted talismans. Before we can invent or suggest a botanical original for any Egyptian conventional form of flower, campaniform or otherwise, we must have texts and religious documents to prove that this flower had a divine meaning, or else we must have the flower in an unmistakable realistic pictorial appearance in a divine association. Now this cannot be shown for any *flower* but the lotus. In the next place, the Egyptians did not "laboriously travesty" anything. A conventional decorative art taught by theory has never existed before the decorative art craze. All conventional departures from nature in historic ornament are the result of copying copies hastily with, or on, tractable materials—or they are the result of rapid indication, subsequently misunderstood by artists using a pictorial symbol without reference to nature. (In the case of the egg-and-dart moulding the empty space between the flowers became the element of the pattern.) For a thousand years Byzantine art never looked at a human figure to copy it. It copied a traditional type of picture. Egyptian art can only be understood and studied in the same sense. The whole assumption that the Egyptians went to nature is erroneous—they went to tradition. Finally, I should turn the tables on my reviewer by asking why the Egyptians who had "a great variety of flowers before their eyes in nature" *always* selected a "campaniform flower." Are there not many flowers which are not campaniform? The fact is there are only two types of "campaniform flower" in Egyptian ornament; not a great variety. One type is the natural lotus, with various conventional evolutions—*the other type is the outline copy of a lotus amulet made of hard material* (the so-called papyrus) with conventional evolutions.

If we appeal to pictorial art or to hieroglyphic texts we find next in importance to the lotus as a divine plant—the Persea tree. Isis in the Persea tree is a common thing in Egyptian art, but we find no pattern of Persea trees or of details of Persea trees in Egyptian ornament.

There still remains the question of the papyrus. Of this it may be said that there is not one case in Egyptian art of a *pattern* formed of realistic papyrus. There is not one case in Egyptian *ornament* of a so-called papyrus form which has not been called a lotus by some Egyptologist. But I will deal with the "papyrus" at some other time. It is enough to say now that if I know little about it others know less. Extinct to-day in Egypt, it is unknown to Egyptologists by personal vision. In the year 1854 only one correct modern picture of the realistic papyrus had ever been published. That picture was made in the eighteenth century for Bruce's "Travels," and that is the original of the picture used to-day by Webster's Dictionary and by the Encyclopædia Britannica.

I have devoted this much attention to the criticisms of various reviewers not to "best" them or even to vindicate myself, which is not the affair of the public, but because the objections of the reviewers clearly suggest difficulties which will occur to the public in general. It appears, for instance, to the reviewer of the *Critic* that I have included all Egyptian patterns in my work: "We cannot agree with him in assuming that it was the sole origin of

every sort of pattern, even in Egypt." Now this overlooks the point that I have proven the "pot-hook" of North



King Amenophis III. offering Lotuses to the God Amon.

European prehistoric ornament to be evolved from the goose. The fact is really that the conventional ornaments I have described do include the elementary forms of nearly all the purely conventional patterns of the later civilized world; but this is because our own conventional art is of classical derivation. Probably there is not a single form of *typical* ornament in classical art which cannot be traced to the lotus, *but I have not said so in my book.* As already stated, the ornaments of the "bronze culture" of prehistoric Europe are very limited in number. That they all have Egyptian counterparts is indisputable, and that they came from Egypt with the arts of metal to the Stone Age of the North is my assertion. That normal lotus forms together with the meander, chevron, concentric rings and spiral scroll, as found in ancient American art, are derived from Mediterranean art is also my assertion—but I have not asserted that Dyak or Zuni ornament have no other elements.

In the very appreciative review in the *Nation* I also find a similar passage misstating my position as to Egyptian ornament: "It is incredible that the Egyptian having once accepted that plant (viz., the lotus) as the symbol of his deity and luminary, and used it for ornament, never admitted any other, never associated with it a single line of his own fancy or from any of the myriad natural or geometric forms that were forever under his eyes, but in the slow course of centuries developed all his great store of decorative forms out of this single flower." The fact is mainly that he did this incredible thing, but not in such an incredible way as to make it incredible.

It is incredible that a school of independent landscape painting was unknown to history until two hundred years ago. It is incredible that, since antiquity, landscapes were only found as the backgrounds of religious paintings until the fifteenth century; only found as the backgrounds of classical and religious paintings until the seventeenth century. It is incredible that the cruci-



The God Khem before shrine, supporting leaf of the Lotus.

fixion of Christ is not found in the earliest Christian art, and that it is omitted from one mosaic series where

every other event of the Passion is represented. It is incredible that the whole sixteenth century, all over Europe, abandoned its Gothic naturalism for a return to classic conventionalism without reference to surrounding nature in its pattern ornament. But these are all facts, however incredible. To the eighteenth century it was incredible that the Furies of Greek art are placid and beautiful figures, or that the Rondanini Medusa was evolved from the type of the Gorgon of Palermo. As I have already said, there are certain Egyptian patterns which I have not published, and I have asserted nothing of any pattern that I have not published. The main fact remains that Egyptian and classic ornamental art are very curiously limited, and that I have been held responsible in some quarters for the character and religion of the ancient Egyptians, which explain this limitation. It is so much easier to correct a modern author than it is to understand an ancient nation.

Still debating this question of the limitation of ancient ornament, let me turn again to the topic of Greek art. It may be said: "If the star pattern, the *ankh* pattern, the *tat* pattern, and a pattern of grape bunches and vine leaves are found in Egypt, how do you know that they were not found in Greek art." I answer—possibly they may have been or were so found. I have asserted nothing except for the patterns published in my book. I have found that I have given the average critic credit for a knowledge which he does not possess regarding the patterns which I have not published. And still I am willing to admit that I have published most of the Egyptian and classic patterns and perhaps all the fundamental classic patterns except the "acanthus" which are known, and therefore I have entitled my book a "New History of Classic Ornament as a Development of Sun Worship."

IV.

This is a long introduction, but I have found the point of supposed absurdity, inherent improbability, etc., to outweigh some of the most absolutely conclusive proofs which were ever put on paper. The *Nation* says: "This bold thesis is maintained with great acuteness and range of evidence and with an opulence of citation from other authorities, and especially from examples of the early art of all countries, that surprises the reader and at times almost takes his breath away . . . the recurved petals of the lotus are shown to produce the Ionic flower, the flower begets the volute, the volute the scroll, the scroll the concentric rings. The addition of tangents to the rings produces the curvilinear meander,* the meander the fret, the fret the Swastika; and the argument is persuasive at every point." *But*—now comes the but. "The argument is persuasive at every point," but "the argument proves too much." . . . In the "logic of probabilities the conclusion is weakened at each remove. It is not a chain which is as strong everywhere as its weakest link. The uncertainty is cumulative."

This may so appear to a student who has rapidly read through my book for the purpose of review, but it will so appear less and less to a student who, for a series of months or years, examines the monuments and the publications from which I have culled a number of illustrations large for a book, but very small, considering the number of monuments and publications and the importance of the facts involved.

What is requisite for the professional archæologist is first and foremost a patient study of Cypriote vases. In spite of the length of many reviews given my book, I have not met one mention of my chapter on the Geometric lotuses of Cyprus, and yet that chapter is the key to the entire situation. All my studies were inspired by the problems of the Cypriote vases. The evolutions of ornament which they exhibit must be the initial education of the lotus expert. They stand midway between the art of the ancient East and the art of Greece. I have not

* Argument not quite correctly stated; intention good Concentric rings were derived from rings with tangents rings with tangents from the spiral scroll.

made one discovery which was not inspired by them.

I did not begin my studies with any theory to prove or any definite end to attain. In July, 1887, I sat down to write two pages for the *American Journal of Archæology* on the problem suggested by the pottery lotuses of Cyprus. The result has been a work of four hundred royal quarto pages, containing thirteen hundred illustrations. It is the logic of the evolution itself which has led me. Where I started most of my critics stand already. I have not found one review except that of the *Independent* which has antagonized my theory of the Ionic volute, and Dr. Tylor, who does not seem thoroughly convinced, has not made his reputation in the field of classic art. My first observation on the lotiform origin of the Ionic volute was made in 1873, and I did not prove the point to my own satisfaction till 1887. The critics have done well who have reached the same conclusion through the study of a few plates of illustrations in a day or a month. But it has not been sufficiently considered what is involved in the theory of the Ionic spirals. Not only is there philosophically no line to be drawn between one form of spiral and another, but the identity of the Ionic spiral with the spirals of the anthemion "honeysuckle" has already been proven by another archæologist (Dr. Joseph Thacher Clarke). Whatever proves the Ionic Capital to be a lotus carries the anthemion with it. I never yet have met a specialist in architecture, art, or archæology, who did not immediately concede the origin of the egg-and-dart moulding, as soon as illustrated. The *Christian Union* critic is the only one who expresses a doubt on this head. The demonstrations for the rosette are so conclusive that it is only a question of a little time and independent observation. There is not much left in Greek ornament when these elements are disposed of. The "acanthus" evolutions are all of a late period.

Now comes the question, can we admit the spiral to be a lotus in Greek art invariably (a point which can be proven to satiety) and deny it to be a lotus in the Egyptian art from which this lotus ornament came. It is here that the argument from concentric rings applies—it fixes the solution. Itself the most improbable of lotuses, it demonstrates the spiral scroll—just as the meander is proven a lotus evolution through the Swastika.

When the Ionic volute has been once accepted, I do not see where to draw the line, and I would gladly have done so to avoid the appearance of being an extremist.

V.

It will be observed that I have aimed in this paper to meet general objections before offering subsequently special proofs, and I have acted on this principle, because it appears to me necessary to meet my critics before appealing to the public. The latter would otherwise distrust me.

From this point of view I have still an objection to meet. As very well stated by the *Nation*, this is "the extreme probability that different nations were working out apart their own habits of ornamentation, and the fact that there is a considerable number of forms so obvious and inevitable that it would be a wonder if they were not nearly universal. In point of fact, as we all know, certain ones are practically universal, and are reinvented every time an untaught person tries to invent ornament; others, such as the fret, meander and rosette, we may fairly say, are found wherever a people have by practice developed a system of ornament. Most of these simple elements are found in the ornament of every savage tribe that has attained a little skill." As the *Christian Union* puts it, "Children who never saw a lotus draw rosettes." Or, according to the *Critic:* "Given the tools and an instinct for decoration, geometrical ornament will spontaneously follow."

These assertions simply beg the question whether or no I have proven my points. They restate the belief which has so far been universal, and which I have shared with the rest of the world until I saw cause to think differently. First, they overlook the surroundings

and facts of modern civilization. No child draws rosettes who is blind, and every child, who sees, has seen rosettes before attempting to draw them. These rosettes in modern use which the child has seen are a direct traditional inheritance from classical antiquity. Our own meanders are all of classical origin and so are all our spiral scrolls. Our trefoils and anthemions are all a traditional inheritance from classical antiquity. Why should we assert for savage nations a talent and inventive capacity which we do not put in practice ourselves? It appears to me that critics who make these assertions have not studied the history of Renaissance ornament, or have forgotten it, or that they are led astray by the artificial efforts to teach off-hand conventional design to children which have come into fashion since the decorative art craze and the discovery of Owen Jones that good historic ornament has been mainly conventional. Since the decorative art movement we have seen many diaper patterns on oil-cloths and wall-papers which are a product of this new artificial training; but the conventional patterns of wood-work, metal-work and stone-carving, the traditional forms of trefoil, scroll, meander and anthemion are still the most prevalent, and they *are* traditional. There is not a spiral scroll ornament in the civilized world to-day that does not show Renaissance influence and origin, and down to 1850 there was not a conventional design in civilized countries that was not traditional. I reassert, then, that the inventive faculty boasted of, is not even found in modern artificial civilization. When we move back to the Greeks it becomes a question of fact that, whatever the origin of the ornament as regards nature, the ornaments themselves were all borrowed. The nation which is conceded to have had a supreme talent for decoration did not invent one elementary motive of its own ornament.

When these facts are conceded, shall we continue to claim for savage tribes a general faculty for inventing meanders, spiral scrolls and rosettes? I hold that the contention that savage tribes ever make an abstract pattern that does not go back to nature by a series of conventional variations is one which has to be proven. More than all, I challenge the assertion most distinctly that "most of these simple elements (viz., the fret, meander and rosette) are found in the ornaments of every savage tribe that has attained a little skill." Within my observation the rosette is unknown to savage African ornament.* It is so little known to Polynesia that I can only quote one case (viz., Samoa) in one individual instance. The rosette is not common in ancient American ornament. I know it in stone carving (at the top of stone posts) at Labnah, but I do not know it at Uxmal (where the *Nation* reviewer thinks he knows it). The rosette is fairly common on Zuni vases. In all the above cases I assert it to be derivative. The rosette is absolutely unknown to North European prehistoric ornament.† The meander is so rare in Polynesia, that I have never seen an instance; it is unknown to savage Africa. My contention is that all forms of the spiral in Polynesia have moved from a Malay centre, and when we strike Malay ornament we stand on solid ground as regards the lotus. The Dyak (Malay) ornament is conclusive testimony and points to Hindoo or Phenician transmission.

To quote again from the *Nation:* "The argument amounts to the assertion that the art and religion of all the world and, therefore, almost necessarily the civilization, were the gift of a single people, transmitted in turn to every other, to the absolute denial of any other initiative or independent development." This approximates to a statement of my position, not as regards art (although certain forms of ornament are in question), not as regards religion—but as regards civilization—decidedly yes! My position is that the first substantial step in civilization was the discovery of bronze, that this discovery was made in Egypt, and that the patterns of the chevron, meander, concentric rings and spiral scroll were

* It is found in the gold jewelry of the Ashantees, who also have the Swastika and the normal lotus.

† It traveled from the south as far as Halstatt.

transmitted to the Stone Age of Northern Europe with the arts of metal. My position is that Ancient America experienced influences of Mediterranean culture through Phenician voyages or otherwise. My position is that any of the patterns in question, as sparsely found in Polynesia, are traceable to Malay influence. My position is that Greek ornament is Egyptian throughout in elementary origin, and that the particular elements of Egyptian design which are known to have influenced Greek art were all evolutions from the lotus. Not having reached a solution of the acanthus, I did not announce this last position in the "Grammar of the Lotus," but I announce it now.

Wm. H. Goodyear.

(TO BE CONTINUED.)





"WATCHMAN, WHAT OF THE NIGHT?"

"WATCHMAN, what of the Night? What of the Night?"
"No sign of Day, my Heart, no sign of Day.
The wheeling stars drop down into the Night,
And, for the coming of the light, my Heart, I pray."

"Watchman, what hearest thou? Some whisper stirred
Within the vastness, like a summer air."
"No. No, my Heart, 't was thy own throb I heard;
This silence is God's voice, and I despair."

"Watchman, what hopest thou, of Joy, or Pain?"
"Oh! hush, my Heart, Hope is a thing so frail;
I dare not think, lest Thought should prove Hope vain
And rob Life of a light that burns so pale."

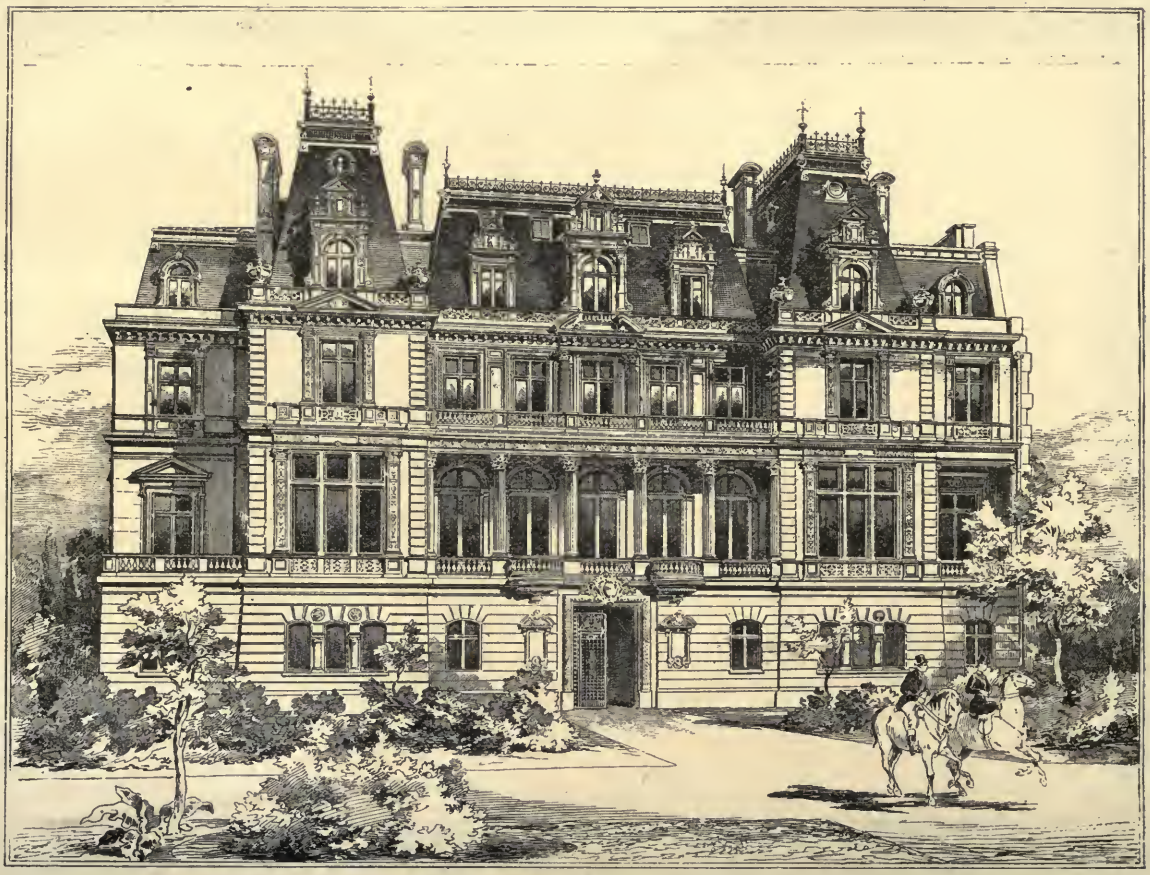
"Watchman, what thinkest thou: 'T were well to pray?"
"I have sent a prayer, my Heart, beyond the Night;
Dove-like, perchance, it may have reached God's Day,
And yet may bring glad tokens of the light."

Harry W. Desmond.



Modern French Residences

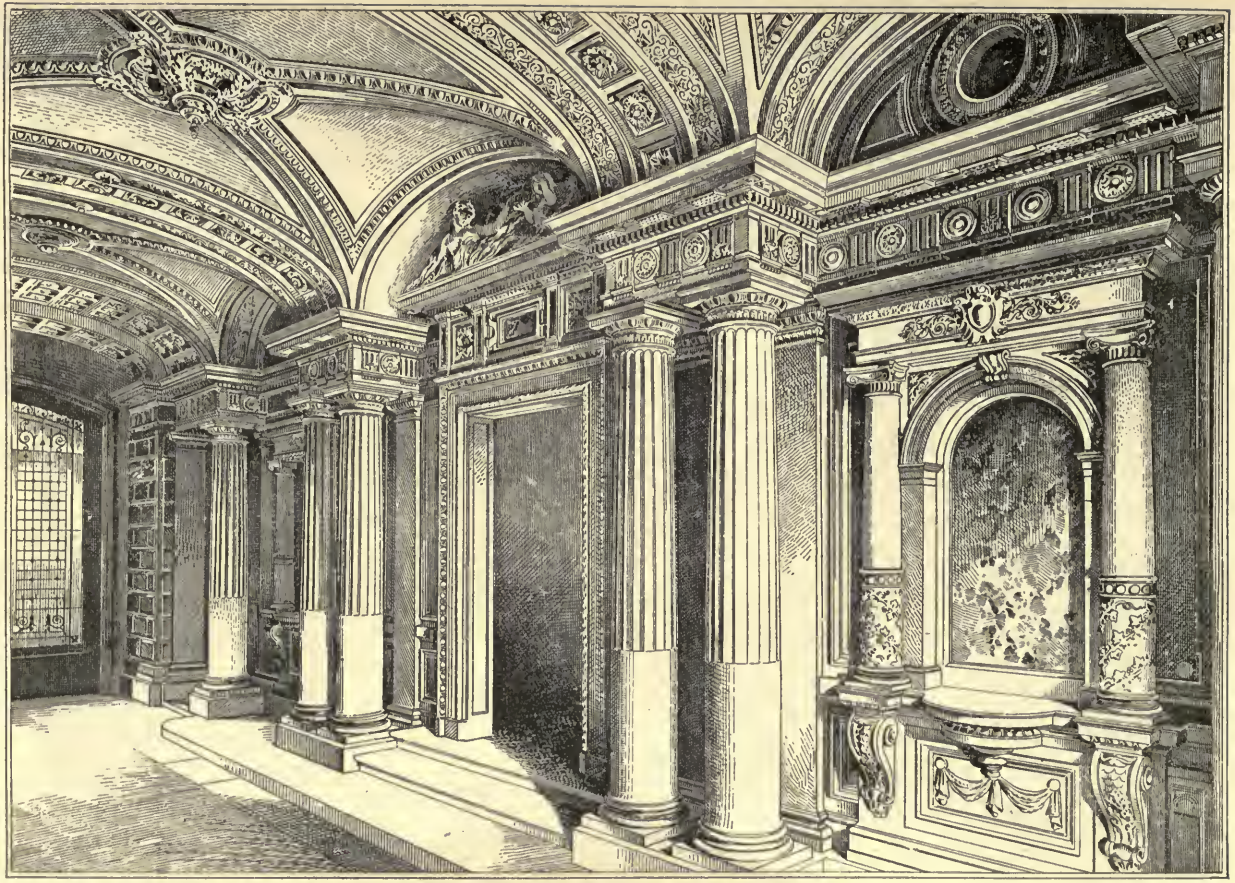
[From "La Construction Moderne."]



PRINCIPAL FAÇADE.

Bois de Boulogne, Paris, France.

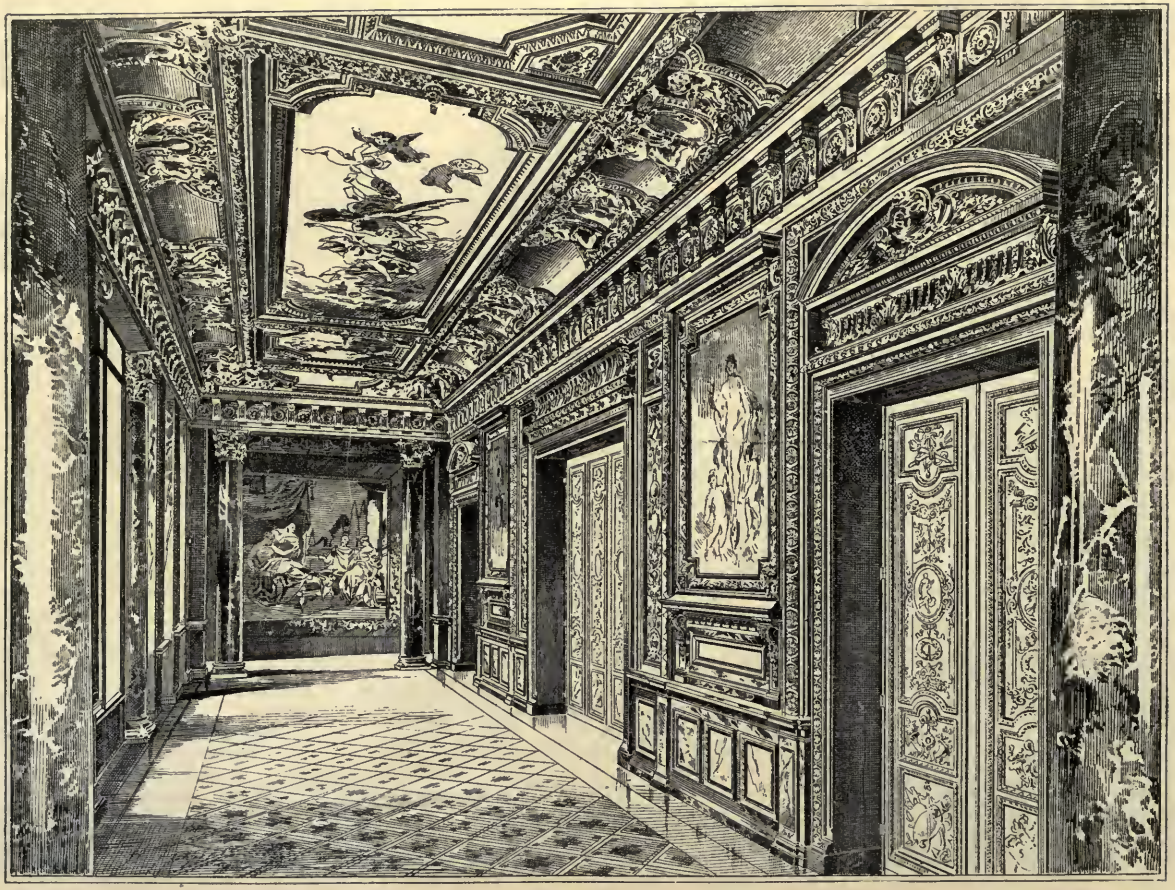
M. F. Gaillard, Architect.



HALLWAY.

Bois de Boulogne, Paris, France.

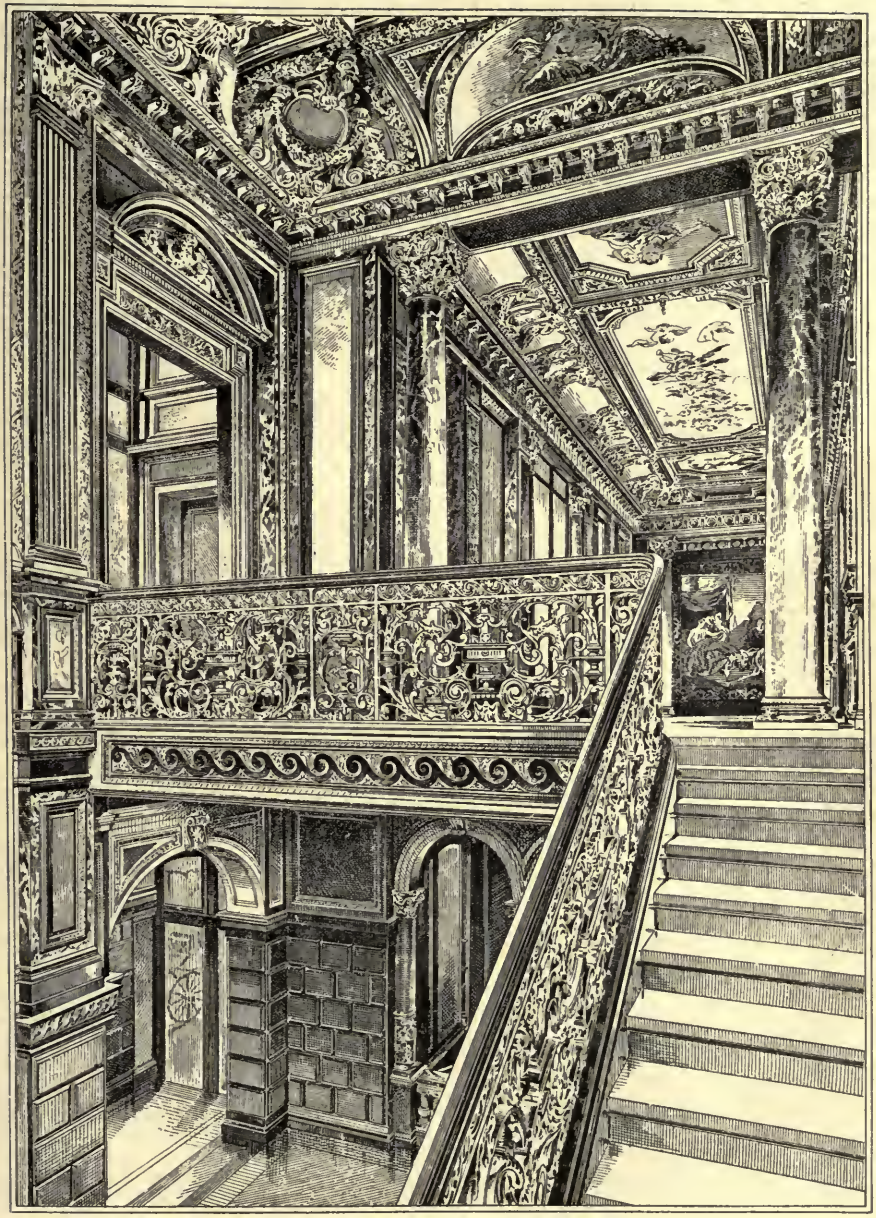
M. F. Gaillard, Architect.



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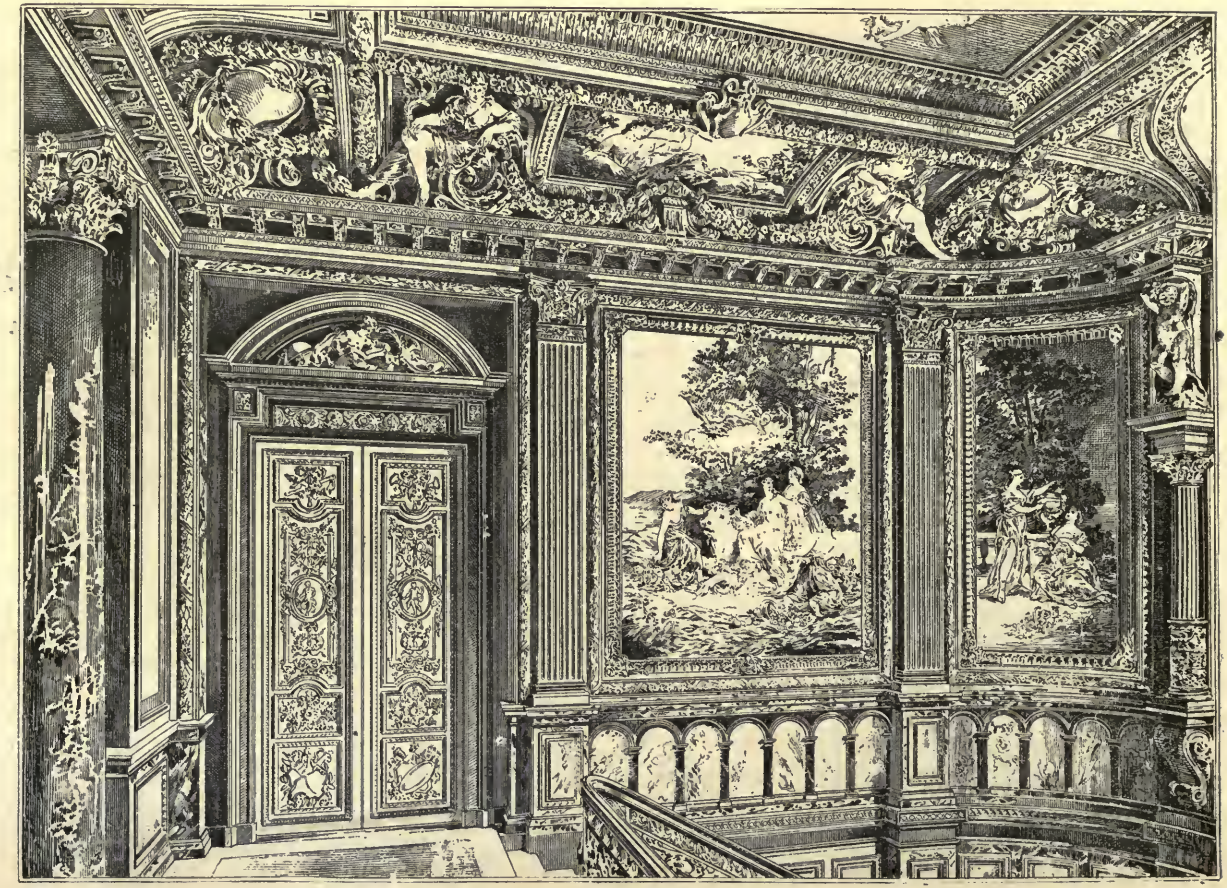
Bois de Boulogne, Paris, France.

M. F. Gaillard, Architect.



GRAND STAIRCASE.

Bois de Boulogne, Paris, France. M. F. Gaillard, Architect.



HALL–GALLERY.

Bois de Boulogne, Paris, France.

M. F. Gaillard, Architect.



SALON.

Bois de Boulogne, Paris, France. M. F. Gaillard, Architect.



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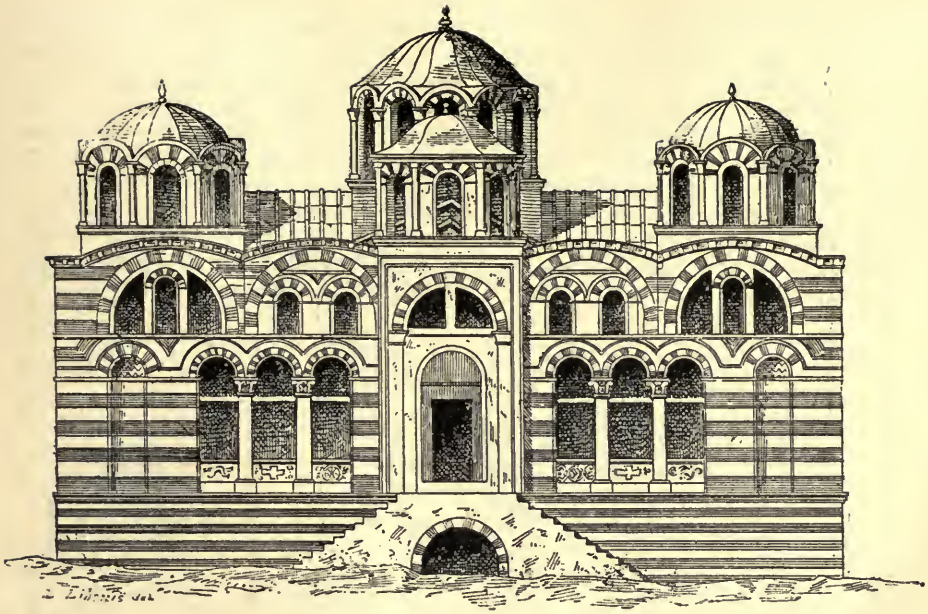
26 EXCHANGE·PL·

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FAÇADE OF THE THÉOTOCOS.

Byzantine Architecture.

Part III.—SECULAR BYZANTINE.

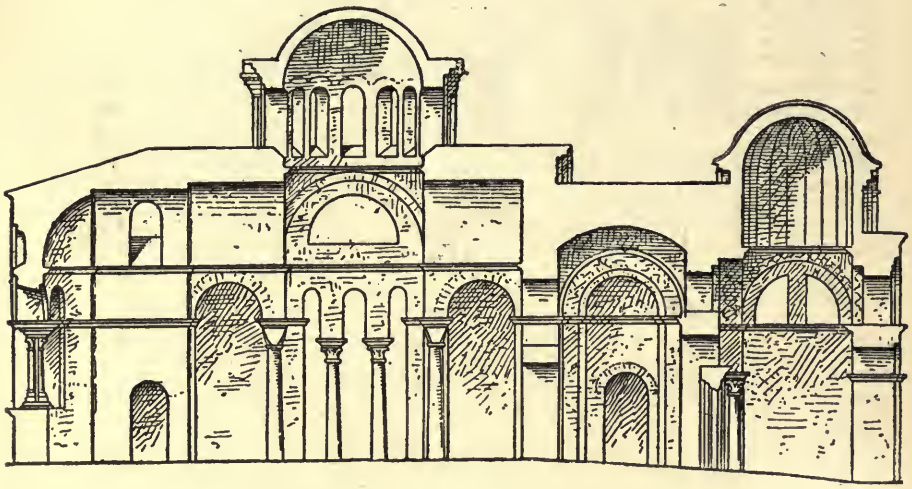


S Constantinople was a Christian city as well as the seat of the lower Empire, we might expect that when it was taken by Mahomet the Second (May 29, 1453) all the national buildings would be destroyed, and as Mahomet and his Turks were Mussulmans that, if nothing else were destroyed, the churches would be; in fact most of the secular buildings were destroyed, but curiously enough the Christian churches were found to be so perfectly adapted to the Mussulman ritual, that a great number of them, including Sta. Sophia were converted into mosques, and the conversion they required was small, the altars, inconostases, and the ambos were removed, the Mihrab or Kibla was set out on the line of Mecca, which rarely coincides with the orientation of the Christian churches, and the step in front of the Kibla was put at right angles to it, which makes many believe that the churches are out of the square.

James Ferguson believed that many of the Turks were still housed in the old palaces; but, from domestic privacy being fanatically cherished by them, it is impossible for antiquaries to enter them, and to settle the question.

The Marquis de Voguë has found ruins of churches, of secular public buildings, and of private houses in Central Syria; but their requirements must have been different from those of the Roman palaces at Constantinople, even if the difference of climate were alone to be taken into consideration. The nearest approach we have to the Byzantine palaces of Constantine's time is probably the Palace of Diocletian at Spalato; still there are plenty of de-

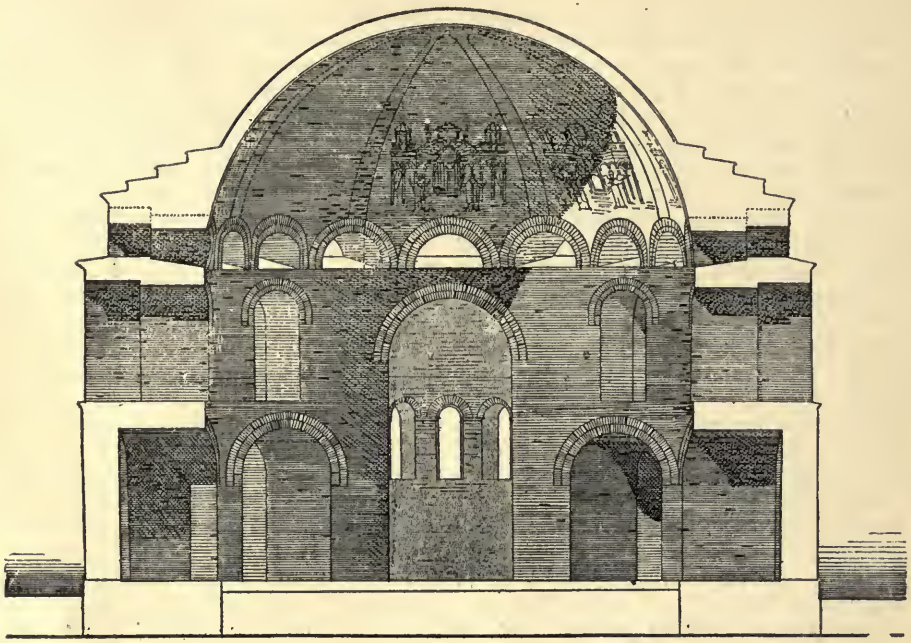
scriptions in the Byzantine writers of parts of the Imperial Palace at Constantinople. As the Imperial Palace was of great magnificence, I will give you a description of it. Through the indefatigable industry of Labarte, particulars were gathered by him from the Byzantine authors, and from these he drew out a plan of it, as it existed in the tenth century, mainly from the description of Constantine Porphyrogenitus. I am mainly indebted to him for the description. If this description were of no other use, it would at least enable you to comprehend much of the doings of the Emperors at Constantinople, which without it would be incomprehensible. And you will also hear of the magnificence with which it was decorated.



LONGITUDINAL SECTION OF THE THÉOTOCOS.

Up to a certain period, Rome had given the ideas of sumptuous decoration to the barbarians, and to this day certain words in general use bear testimony to it. The oriel window was the window to the golden parlor of the monasteries, and these golden parlors were imitated from the gilded or gold-plated rooms of the imperial palace. We know that as early as the days of Horace, grand houses had ceilings of ivory and gold. These habits of magnificence were not given up when the Romans migrated to Byzantium; but, on the contrary, the Byzantine emperors, who were mostly of barbarian origin, tried to make up for the loss of art by the lavish use of gold, silver, enamel, and jewels. The Bulgarian peasant, Justinian, had a passion for costliness, not only in his own palace and for his own court, but for churches too, and the new Sta. Sophia having been built by him, and being the court cathedral, he spared no expense to make it sumptuous; he had all the fittings and furniture of the Bema made of gold or solid silver, and this silver was mostly gilt. Procopius tells us that 40,000 pounds weight of silver was given by Justinian for this purpose, and he, the Empress, and the whole court and its attendants were clothed in equally sumptuous apparel. This latter taste, however, was antecedent to Justinian, for not to speak of the dresses of Diocletian and Constantine, we read in Gibbon of the Emperor Julian calling for a barber soon after his entrance into the imperial palace, when an officer magnificently dressed presented himself. "It is a barber," exclaimed the prince, with affected surprise, "that I want, and not a receiver-general of the finances," and on questioning the barber he was told that, besides a

large salary and some valuable perquisites he had a daily allowance for twenty servants and as many horses. The savage, and often naked, Arabs rapidly fell into this taste for costliness, and even surpassed the originators, for we read of the ambassadors of Constantine (the 7th) Porphyrogenitus, the Artistic Emperor (916–959), visiting the Caliph El-Muktedir (917–942) in 927, and being astonished at the magnificence of his court. Lane, in his notes to the "Arabian Nights" gives the following account: "In the beginning of the year of the Flight, 305 (June A.D. 927), two ambassadors from the Roman Emperor (Constantine 7th, Porphyrogenitus) arrived in Baghdad on a mission to the Khaleefeh El-Muktedir, bringing an abundance of costly presents;" and the scenes which they witnessed are thus described, apparently, however, not without some exaggeration: "They were first received by the Wezeer, who, at the audience which he granted to them in his garden palace, displayed on this occasion a degree of magnificence that had never before been manifested by any of his rank; pages, memlooks, and soldiers crowded the avenues and courts of his mansion, the apartments of which were hung with tapestry of the value of 30,000 deenárs; and the Wezeer himself was surrounded by generals and other officers on his right and left, and behind his seat, when the two ambassadors approached him, dazzled by the splendor that surrounded them, to beg for an interview with the Khaleefeh. El-Muktedir, having appointed a day on which he would receive them, ordered that the courts, and passages, and avenues of his palace should be filled with armed men, and that all the apartments should be furnished with the utmost magnificence. A hundred and sixty thousand armed soldiers were arranged in ranks in the approach to the palace; next to these were the pages of the closets, and chief eunuchs, clad in silk, and with belts set with jewels, in number 7,000; 4,000 white and 3,000 black; there were also 700 chamberlains, and beautifully ornamented boats of various kinds were seen floating upon the Tigris, hard by. The two ambassadors passed first by the palace of the chief chamberlain, and, astonished at the splendid ornaments and pages and arms which they there beheld, imagined that this was the palace of the Khaleefeh; but what they had seen here was eclipsed by what they beheld in the latter, where they were amazed by the sight of 38,000 pieces of tapestry of gold-embroidered silk brocade, and 22,000 magnificent carpets. Here also were two menageries of beasts, by nature wild, but tamed by art, and eating from the hands of men; among them were 100 lions; each lion with its keeper. They then entered the palace of the tree, inclosing a pond, from which rose the tree; this had eighteen branches, with leaves of various colors (being artificial), and with birds of gold and silver, of every variety of kind and size, perched upon its branches, so constructed that each of them sang. Thence they passed into the garden, in which were furniture and utensils not to be enumerated; in the passages leading to it were suspended 10,000 gilt coats of mail. Being at length conducted before El-Muktedir, they found him seated on a couch of ebony, inlaid with gold and silver, to the right of which were hung nine necklaces of jewels, and the like to the left, the jewels of which outshone the light of day. The two ambassadors paused at the distance of about a hundred cubits from the Khaleefeh, with the interpreter. Having left the presence, they were conducted through the palace, and were shown splendidly-caparisoned elephants, a giraffe, lynxes, and other beasts. They were then clad with robes of honor, and to each of them was brought fifty thousand dirhems, together with dresses and other presents. It is added that the ambassadors approached the palace through a street called the street of the 'Menárehs,' in which were a thousand menarets. It was at the hour of noon; and as they passed the muëddins from all these menárehs chanted the call to prayer at the same time, so that the earth almost quaked at the sound, and the ambassadors were struck with fear." ("The Thousand-and-One Nights," Lane, 3 vols.,



SECTION OF ST. GEORGE, SALONICA.

8vo., London, 1859. Note to the story of the Second Lady of the Three Ladies of Baghdad.)

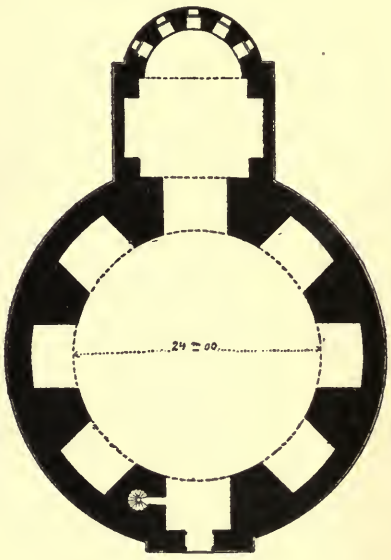
I give you this extract partly because the Imperial Palace as shown is of the date of Constantine Porphyrogenitus, and partly to show you that the rarities and ceremonials of the Caliph's palace were almost a counterpart of those of the Byzantine Court. The Grand Triclinium of Magnaurus was built by Constantine the Great, and much resembled the great hall of Diocletian's Palace. It was used by the Emperors for the reception of Princes and Ambassadors, and was a vast hall formed into two aisles and a nave, by six columns on each side; at the end was a dais, reached by steps of green marble, with an apse at the back; two columns on each side of this apse supported curtains with which the end of the hall was draped.

"The Emperor was robed in the Imperial dress before mounting the throne, called the throne of Solomon, and all the Senators and grand dignitaries were there assembled. The throne was of gold, enriched with precious stones. There were birds that warbled by ingenious mechanism; close to the throne there was an enormous cross of gold covered with precious stones; beneath it were placed the golden seats for the members of the Imperial family. At the bottom of the steps of the dais on which the throne was placed were two lions, which raised themselves on their paws and roared like real lions; not far from the throne golden trees bore on their branches birds of different sorts who imitated the harmonious song of the birds whose form they borrowed; a great organ, enriched with precious stones and enamels, was also placed there."

The palace of the tenth century was built piecemeal. Constantine built his palace, which was largely added to by that great builder, Justinian; subsequent Emperors made additions, built new palaces, or new suites of apartments for themselves. We can easily understand that those who had murdered their predecessors had delicacy enough to prefer using new rooms which did not remind them of their

crimes. These additions were made until a new palace was built at Blachernæ, on the Golden Horn, and the old palace was less and less used, until it was finally abandoned. Benjamin of Tudela, the Jewish Rabbi, who visited Constantinople in the twelfth century, only speaks of the palace at Blachernæ, and when Mahomet II. took Constantinople there were only the ruins of the old Imperial palace.

Constantine the Great, though professing Christianity, had not done away with the old Pagan worship, and was only baptised on his death-bed by an Arian bishop. In the old Roman days religion was intimately connected with every act of life, and as the Christians increased in number and power they substituted the Christian worship for the Pagan, but kept up the old custom of associating it with every act of life, so that cathedrals, churches, baptisteries, chapels and oratories became as frequent as the old temples and shrines. You will find the Imperial Palace crowded with these new religious buildings. Eventually the Emperors, before they were crowned, had to make profession of the orthodox Christian faith, and as, in an ecclesiastical point of view, they were inferior persons to the Patriarch, they frequently had to attend public worship in the cathedral, and to have chapels and oratories at hand to say their prayers in. The bulk of the rooms on the south side of Sta. Sophia were mainly devoted to the Emperor's use. The hippodrome acted the part of the old Roman forum, where the people assembled and criticised the Emperor's ways, and the games were always presided over by the Emperor. The hippodrome begun by Septimius Severus was finished by Constantine the Great. It had a great influence on Constantinople, for Constantine set out his palace at right angles to it, and subsequently Sta. Sophia was set out in the same way parallel with the palace. The hippodrome was once a museum of art; the horses of St. Mark, which were taken by Theodosius II. from the Island of Chios, came from it, now nothing remains but the obelisk, the bronze tripod of Delphi, with headless serpents, though one head is in the museum, and the built obelisk of Theodosius stripped of its brazen covering. The palace was not one building with an architectural front, but was a conglomeration of buildings, open areas, passages, baths, churches and oratories, stables and gardens. The main group consisted of three palaces, called the Chalce, the Daphne and the Sacred Palace; this last is considered by many as the palace proper; but the Hippodrome, the Forum Augusteum, the Baths, the Cathedral and the Palace

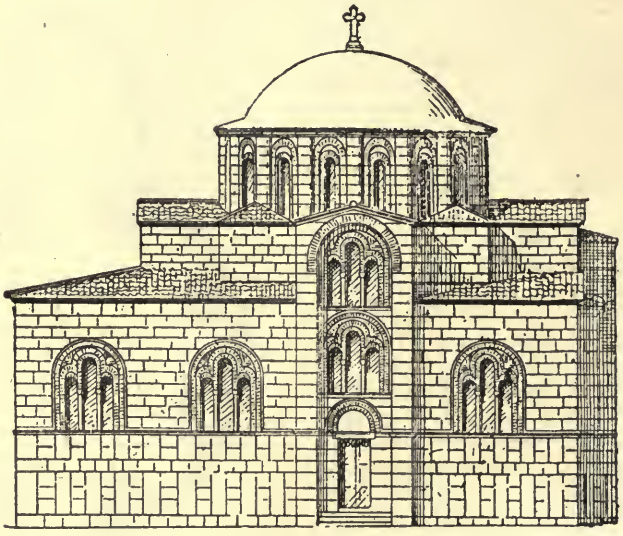


PLAN OF ST. GEORGE, SALONICA.

were joined together and really formed a sort of whole, while smaller palaces were dotted about the grounds and were called the Aetos, the Boucoléon, the Porphyry Palace and the Penta-coubouclon.

I think the simplest plan will be to begin with the Hippodrome and describe the position and collocation of the parts. It had the form of the Roman circus, only the triumphal gate at the south end was obliged to be left out on account of the steepness of the ground. It had four gates, two to the east and west, nearly opposite the south meta, the southeast gate being called the Gate of Death, for though Constantine had abolished the gladiatorial games, it

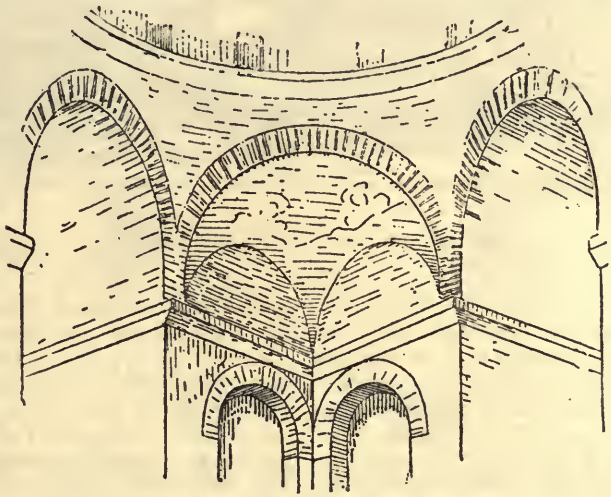
seems that the name of Porta Libitinensis was still used; it was originally so called because the bodies of the slaughtered gladiators were taken out through it; and two gates, also east and west, at the north end, nearly in a line with the platform in front of the Emperor's throne. At the back, farther north, was the Palace of the Cathisma, and beyond that the Baths of Zeuxippus. The northeast angle of these baths touched the southwest angle of the Forum Augusteum, a moderate-sized square, about 623 feet from east to west, by 460 feet from north to south, about the size of the Place Vendôme at Paris. The Forum was surrounded by a peristyle or cloister; on the south side it bounded the Palace of the Chalce; on the north Sta. Sophia, the Emperor's rooms, however, projecting into it; on the east it touched the face of the Senate House, the Church of St. Mary Chalcopratiana, and the front area of the grand Triclinium of Magnaurus; on the west side I know not what it touched, but on this side were the chapels of St. Constantine and St. Mary of the Forum. This Forum of Augustus contained most of the sculpture and statues that had been taken from the different provinces of the Roman Empire by Constantine to adorn his new capital. To the south of the Chalce was the Palace of Daphne, and to the east of these two the Sacred Palace. The Palace of the Chalce was almost entirely rebuilt by Justinian after it had been burnt in the riots of the Nika, and was entered from the southwest corner of the Forum Augusteum by an iron door; the Atrium ended at the south by a hemicycle covered by a semi-dome. South of this was a domed hall, ending southwards with a smaller hemicycle. I here give you the description of it from Procopius (Lib. I., cap. 10):—"As, according to the proverb, we know the lion by his claw, so my readers will learn the magnificence of this palace from the entrance hall. This entrance hall is the building called Chalce; its four walls stand in a quadrangular form, and are very lofty; they are equal to one another in all respects, except that those on the north and south sides are a little shorter than the others. In each angle of them stands a pier of very well-wrought stone, reaching from the floor to the summit of the wall, quadrangular in form and joining the wall on one of its sides; they do not in any way destroy the beauty of the place, but even add ornament to it by the



FAÇADE OF DAPHNE, NEAR ATHENS.

symmetry of their position. Above them are suspended eight arches, four of which support the roof, which rises above the whole work in a spherical form, whilst the others, two of which rest on the neighboring wall towards the south and two towards the north support the arched roof which is suspended over those spaces."

From this vestibule to the westward you enter into the oratory of the Saviour containing the tomb of the Emperor John Zimisces (969-976); to the north and east of this was the Noumera, used as a prison; from the vestibule to the east you entered through a splendid bronze door into the Triclinium of the Scholars. They were a part of the Prætorian guard. At the southwest end of this was the chapel of the Apostles; to the east of the Triclinium of the Scholars was a passage and the lychnos, where the Emperor received the homage of his servants and bestowed dignities on them; to the east of this was the Triclinium of the Excubitors, another band of Prætorians, and that of the candidates, a cohort of the Emperor's guard; at the west end of this hall was a dome on eight columns, under which was a great silver cross. Near it was the grand consistory, which had three ivory doors. At the end was the Emperor's throne, covered by a cyborium, where he received the homage of the great officers of the crown. At the side of it was a large dining-room where the Emperors dined the dignitaries on festivals; in front of these four halls last mentioned was an open yard, about 65 feet wide, divided in the middle by a fence and gate, called the curtains, through which the Emperor occasionally rode; it was prolonged up to the Church of Our Lord, the Royal Chapel, up to the time of Basil the Macedonian (867-886). At the back of this church was a passage that led into the Phiale of the Sacred Palace, but by passing through the sacristy of the church one entered the Heliacon, or open area of the grand Triclinium of Magnaurus, the splendors of which I have before described. On entering the Palace of Daphne from the hippodrome by the door, you come into a large open court having a guard room called the porter's lodge in the southwest angle, and to the south of this was the covered hippodrome of the palace originally used by the Emperors, but it afterwards served as a shelter for the Senators' horses when the Senators waited on the Emperor at his palace; at the west corner of this was a staircase by which a garden called Phiale was entered; then came open courts with peristyles; then the ancient chapel of St. Mary of Daphne; then the oratory



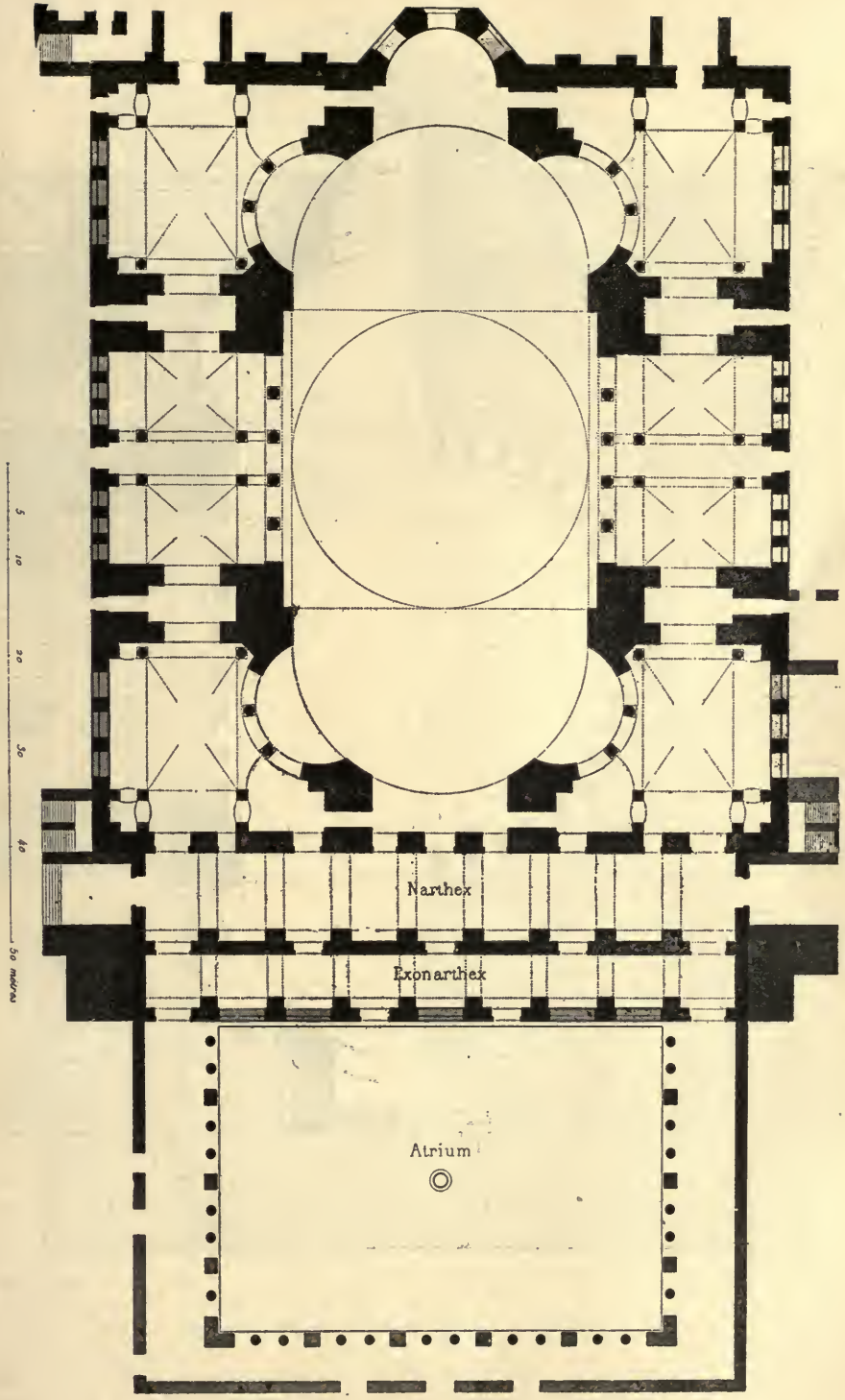
DAPHNE—INTERIOR OF THE CUPOLA.



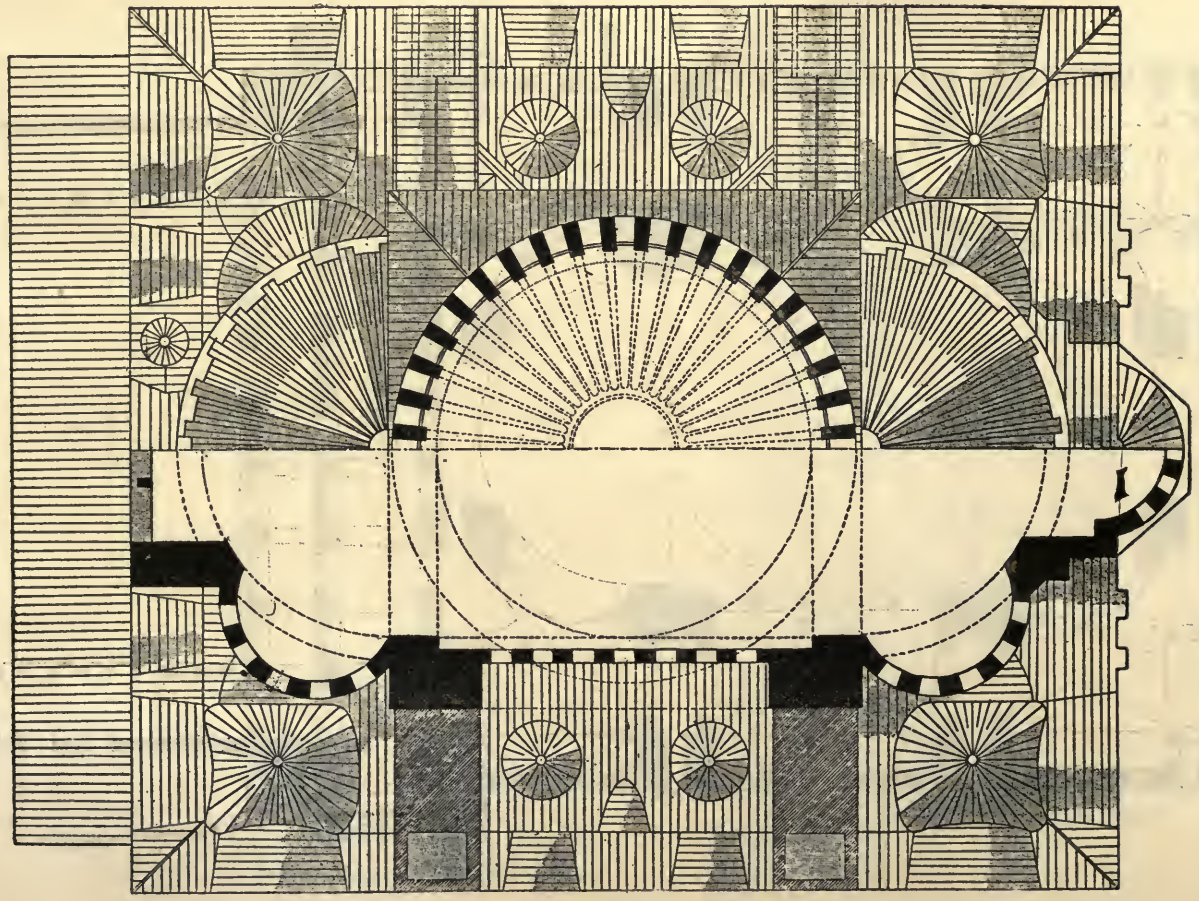
VIEW OF SANTA SOPHIA, CONSTANTINOPLE.

of the Holy Trinity, the baptistery and a staircase leading into the Justinianos; the Triclinum Augusteos was a vast hall used for receiving the homages of the functionaries, and was often used for crowning the Empresses; beyond was an octagonal hall and the Emperor's bedroom, where he left his imperial robes and crown after attending service in state at Sta. Sophia; then a long open corridor or peristyle, which led to the Church of St. Stephen, that preceded the platform of the Cathisma Palace, and overlooked the race-course; from the windows of this church the ladies of the court saw the races and games. The Emperor Heraclius was crowned here, and it was used for celebrating the marriages of the Emperors. Above, to the north of this open corridor, and between the Palace of the Chalce, were the remaining open courts and chambers of the Palace of Daphne; the Grand Triclinum of Nineteen Couches; it was divided into three parts—the portico, the dining-room and the bedroom. Here the Emperor entertained guests at Christmas All the plate used was of gold, and fruit was served in three gold vases, so heavy that they had to be wheeled on carriages, which were covered with purple, and they could only be lifted on to the tables by gilded leather ropes and pulleys; there were two silver columns at the end, between which was the Emperor's throne. It was not only used for grand dinners, but for grand receptions; many of the Empresses were crowned here, and the Cæsars were here installed. I may say that at the close of the old Roman Empire, and during the continuance of the Lower Empire, the second of the joint Emperors was called Augustus, and the heir to the throne, Cæsar. For instance, Constantine was made Cæsar by Galerius, but claimed to be made Augustus; and the same dispute took place between Constantius and Julian. In this Triclinum of the Nineteen Couches, deceased Emperors were laid in state.

The Sacred Palace had an atrium semi-circular at both ends, and the mysterious phiale of the τρίκογχος, or triple shell, its mysteriousness was probably owing to its acting as a whispering-gallery. The original meaning of the word phiale was a



PLAN OF SANTA SOPHIA, CONSTANTINOPLE.

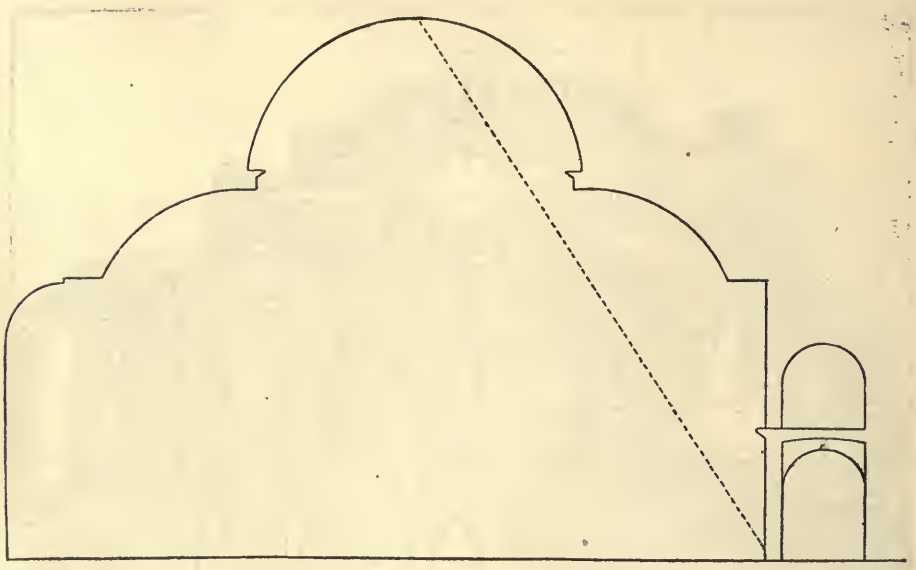


SANTA SOPHIA—PLAN OF CUPOLAS.



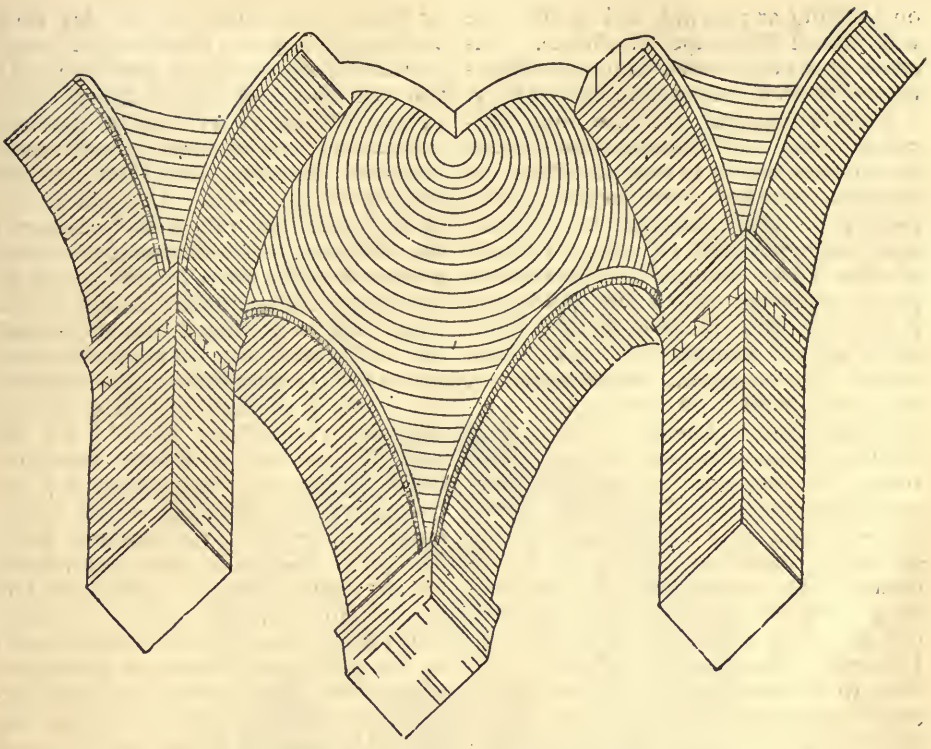
THE APSE OF SANTA SOPHIA.

saucer, or round, flat drinking-cup; but the word was afterwards used for the flat basin of a fountain, and then for any open space with a fountain in it. The triple shell applied to the half domes of the apses; there were three apses. I believe κόγχος is used when the inside of a squinch is hollowed out like a shell. From the north side of this you entered into the Chapel of St. John and from the south side into the baths; in the parts behind the hemicycle was a guard-house and a door to the under part of the terrace of Daphne. There was also a door into the hemicycle, a door to the under-portico of Daphne and a door to the baths; there was also a door into the hemicycle, and another into the courtyard. The phiale was also used for the games played before the Emperor and his friends. Two flights of steps round the eastern hemicycle led into the sigma, a large and long room, with apses at both ends, and three doors on its east side, so called from its resemblance to the old Greek sigma, or C; fifteen columns of Phrygian marble supported the ceiling, the walls were lined with precious marbles, on which verses were engraved. At the south end two bronze lions' heads spouted water into a vase, and in the middle was a little edifice of four columns supporting a dome, under which the Emperor's throne was placed when games went on in the courtyard; in front of the throne was a balcony; to the north of this was the Triclinium Eros, used as a museum of arms. From the south end was entered a room called Triclinium Pyxites, used as a vestry by the clergy of the palace. The two side doors that led into the triple shell were of bronze, the middle one of silver. The room itself, the triconque was a hemicycle, from which three apses were recessed; the half domes of these were called the shells or conchs. Two columns on each side of the east apse carried the archivolt, and this apse had steps or seats round it; the walls of this Triclinium were covered with various-colored marbles, and its ceiling was gilt, and pierced for light. The Emperor Theophilus (829-842) built this part of the Sacred Palace, and used to work here with his ministers. This probably also acted as a whispering gallery, as well as the



ST. SOPHIA, CONSTANTINOPLE.

room under it. To the east was a T-shaped gallery; to the north of this gallery were the offices, with an open court in the middle; to the south were the kitchens, lit from the garden. The north end of the top of the T-shaped gallery ran into another very long gallery, called "The Gallery of the Forty Saints"; to the north of this passage was the "Pearl," or an apartment wholly built by Theophilus (829-842), surrounded on three sides by passages, and on the fourth by the gallery of the Forty Saints. It consists of an anteroom, a bedroom, and a sitting or dining-room. The roof of this dining-room was supported by eight columns of Rhodian marble (black and gold), and its walls were covered with marble mosaics of animals. The bedroom was vaulted, was carried by four marble columns, and was gilt, or of gold mosaic. Out of the third apse of the three-shell Triclinium were the upper winter rooms of the same Emperor, called the Carian, from being lined with Carian marble; and to the east of it was the gallery. To the east of this was the "Camilas," consisting of an ante-room and a vast hall lined with verde antique, with six verde antique columns carrying the roof; above the marble lining were mosaics of people eating fruit; at the south end was a double-apsed oratory to the Virgin and St. Michael. Under it, on the ground-floor, was a room converted into a library by Constantine Porphyrogenitus; beyond was the coubouclion mesopatos; the ceiling carried by four columns of Phrygian marble; the wall was covered with gold mosaic, on which were trees of verde antique; beyond was the Empress's dressing-room, and below it was her bedroom, called the mosaic-room; the vaulted ceiling was supported by seven columns of Carian marble, its walls and roofs were covered with mosaic, and its floors are said to have resembled a meadow enameled with flowers; then a room and an oratory to St. Agnes. The last had a staircase for the Empress on one side, and the remaining part was decorated like the former chamber, and had to the south a vestibule into the garden, through which she could go under the Triclinium Lausiacos to the Cenourgion. The Lausiacos was a long passage, the north end of which went into the gallery of the Forty Saints, and the south into the grand Triclinium of Justinian; in the middle of the garden to the east of the former rooms, and nearly opposite, was a garden



PERSPECTIVE OF VAULTS ON PENDENTIVES AND PIERS.

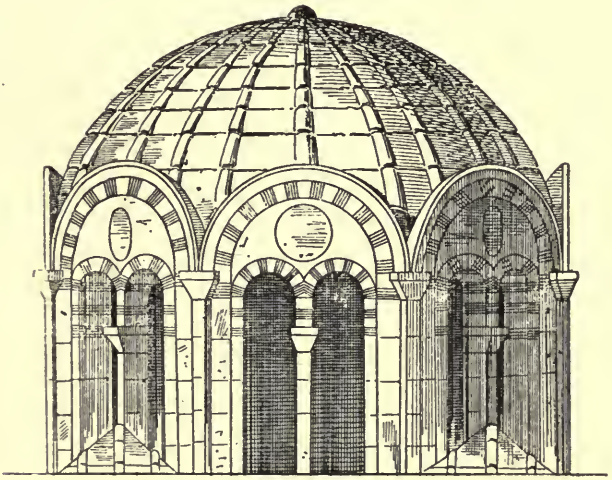
pavilion with two rooms on the ground-floor and two above. This passage Lausiacos separated the golden triclinium or throne-room from the part connected with the triconque. To the west of this passage, and adjoining the kitchen, is the oratory of St. Basil; to the east is the tripeton, horologion, or vestibule to the throne-room. The Patriarch waited in the tripeton while he was being announced to the Emperor. The throne-room was entered on the west by a silver door, the work of Constantine Porphyrogenitus. It was an octagon inclosed in a square, its interior is not unlike St. Vitale in plan: on each of its eight sides were apses; above the arches of the apses was an entablature whose projecting cornice formed a circular gallery round the hall used on grand occasions by the Empress and her ladies; the dome, which rose from the back of this, had sixteen windows. The west apse formed the entrance, and its front was covered by a purple curtain, hung by silver rings, called the curtain of the Pantheon, or the Pantheon only; there was another doorway into this apse to the north, communicating by an irregular-shaped room with the "Passage of the Forty Saints." As each of the apses of the throne-room were inclosed by curtains they formed separate rooms. One was used as the vestry of the Patriarch. The other was the entrance to the Emperor's private apartment; when the Emperor gave a grand banquet the musicians were here. The other apse was called that of St. Theodore, and was used as the robing-room of the Emperor; at the back of it was the oratory of St. Theodore, the Emperor's robes, his crown, his arms, two shields of enameled gold, and all the arms and insignia of office of the head officers of state were kept here; another apse had a silver door of two leaves, which led to the Heliacon of the lighthouse; this apse had a picture in mosaic of Christ on his throne, to which the Emperor prayed

on entering or retiring, and in this apse was placed the imperial throne. Another apse is supposed to have communicated with a staircase to the gallery.

There is another staircase communicating with the dining-room of the cenourgion, and it is supposed that the Empress and her court went into the gallery on great occasions. Another apse communicated with the "Gallery of the Forty Saints." There is a place supposed to have held the porter of the Sacred Palace, and, when he was absent, the keys of the palace; the pavement was designed in the tenth century by Constantine Porphyrogenitus, and seems to have been of Opus Alexandrinum, bordered with silver; the walls and vaults were covered with mosaic, and from the centre of the cupola hung a huge candelabrum called Polycandelon. Basil, the Macedonian, after having murdered his colleague and benefactor Michael the 3rd, did not care about living in the late Emperor's apartment, and had one built to the south of the throne-room, which was called the cenourgion. This apartment afterwards became the private dwelling of the Emperors, until they migrated to the palace at Blachernæ. The first room of the apartment was the Emperor's private dining-room, entered from the tripeton, which also communicated with an irregular chamber in the outer square of the throne-room. The makron, or long gallery of the bedroom, touched the narthex of St. Mary of the lighthouse, from which it was shut off by silver doors. The narthex before mentioned extended across the Chapel of St. Demetrius. From the makron the door into an apse of the throne-room opened. The dining-room and makron must have been lit from the roof. Constantine Porphyrogenitus gives the following description of the vast hall: "It is sustained by sixteen columns, disposed at equal distances. Eight are of verde antique, and six of onyx, sculptured with branches of the vine, in the middle of which all sorts of animals disport themselves. The last two columns are also of onyx, but the artist has decorated them with oblique stripes; spiral reeds or flutes, I presume; in all this work variety of form has been sought as an additional pleasure for the eye. All the hall from the top of the columns to the vaults, as well as to the east cupola has been ornamented with most beautiful mosaics, representing the orderer of the work, enthroned in the midst of the generals who had shared the fatigues of his campaigns; these present him the cities he has taken as an offering; immediately above, on the vault, are reproduced the herculean feats of arms of the Emperor, his great works for the happiness of his subjects, his efforts in the field of battle, and his victories granted by God." To the east of this hall is a little vestibule, which preceded the bed-room; its ceiling was a cupola, in which doubtless were windows; the mosaics which decorated the walls were remarkable for the composition of the subjects and the harmony of the colors. Constantine Porphyrogenitus had constructed in this vestibule a basin of porphyry, surrounded by marble columns, admirably polished; the water-pipe was hidden by a silver eagle with its neck turned aside, and with the proud air of a lucky hunter it held a serpent in its claws. Near by were serving rooms, one of which had a staircase in it, for although the throne-room was on the ground, the ground sloped so rapidly to the sea that here it admitted of there being a lower story. Constantine Porphyrogenitus has also left an account of the bed-room: "The bedroom built by the Emperor Basil is a veritable masterpiece of art. Over the ground in the middle a peacock spreads itself—a fine piece of mosaic. The bird of Medea is inclosed in a circle of Carian marble. The streaks of this stone stand out in such a way as to form another larger circle. Outside this second circle are what I shall call brooks of the green marble of Thessaly, which spread themselves in the direction of the four corners of the room. In the four spaces formed by these brooks are four eagles, rendered with such truth that one could believe them living and ready to fly away. The walls on all sides are covered at the bottom with slabs of

glass of different colors, which reproduce different sorts of flowers. Above these is a different work, of which gold is the ground, which separates the ornament of the lower part from that of the upper part of the hall. One finds in this part another work of mosaic on a gold ground, representing the august orderer of the work upon his throne, and the Empress Eudoxia, both clothed in their imperial robes, and with crowns on their heads. Their children are shown round the hall, having their imperial robes and crowns. The young princes hold in their hands the books containing the divine precepts, in the practice of which they have been brought up. The young princesses also hold similar books. The artist has perhaps wished to make it understood that not only the male children, but those of the other sex have been initiated in the holy writings and have taken part in the teaching of Divine wisdom, and that the author of their days, although he was not able on account of the vicissitudes of his life to addict himself early to literature, has nevertheless wished that his offspring might be instructed, and has also desired that the fact might be patent to all through this painting, even though it was recorded in history. These are the embellishments which are seen on the four walls as far as the ceiling. This ceiling, which is square in shape, is flat. It is resplendent with gold. The cross, which gives victory, is reproduced in green in the middle. Round the cross the stars are seen like those which shine in the firmament, and there the august Emperor, his children and his imperial companion lift their hands towards God and towards the divine symbol of our salvation."

We should give him more credit for piety if he had not had his benefactor murdered.



BYZANTINE CUPOLA.

From "L'Art Byzantin," by O. Rayet.

The Heliacon of the Lighthouse was a vast peristyle forming an atrium to the Church of St. Mary of the Lighthouse and the Chapel of St. Demetrius. It had a doorway sheltered by a porch by which the Sacred Palace is left.

The Church of St. Mary of the Lighthouse, became the Imperial Chapel of the Palace after Basil the Macedonian had built the Cenourgion. The main door of the church was of ivory. In the church was kept an enameled crown of gold and a great cross, the handiwork of Constantine Porphyrogenitus.

In the Chapel of St. Demetrius an enameled image of the Virgin was kept near the entrance door. The chapel had a trefoiled apse.

Near by was the lighthouse. In Asia,

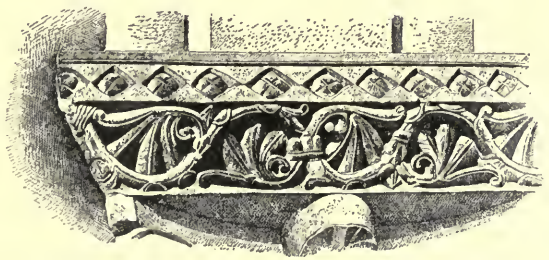
on the other side of the Bosphorus, was another lighthouse, and there were a succession of them up to the confines of Cilicia. By their means intelligence could be conveyed to the Emperor of the incursions of the Saracens. Polybius describes the way of signaling by means of lights (Polybius, Lib. 10, cap. 43-47).

We must now go back to the Lansiacos; the south end of this abuts on the Triclinium of Justinian III.; this was commonly called the Justinianos. It was a covered gallery about 70 feet wide and 336 feet long, running westwards; it was occasionally used for banquets, but more generally for properly arranging the persons or bodies that were going in processions to the Emperor; its west end abutted on a vast vestibule called Scylla, one of the entrances from without to the Sacred Palace; from the north side of this vestibule there was a door to the staircase and on the south side another to a raised terrace, level with the top of the inclosing walls of the Palace; this terrace faced the east side of the great Hippodrome. From the end of this terrace ran an open passage southwards to the extremity of the hill; the lower part of this was called the Peridromes of Marcian; the upper part was level with the terrace and was called the exterior gallery of Marcian. At the south end of the Peridromes was a chapel built in one of the towers of the wall, dedicated to St. Peter, and to it was annexed an oratory dedicated to the Chief of the Heavenly Host; above this was an oratory dedicated to the Mother of God.

The description of the Palace is now completed, with the exception of the outlying buildings, including the Emperor's baths. I may here mention that the Porphyry Palace lies to the south on the shores of the Propontis and is nearly touched by the north and south meridian of Sta. Sophia when prolonged southwards. It was a small square palace with a pyramidal roof; its walls were wholly covered with slabs of porphyry brought from Rome, and the floors were also paved with porphyry. This palace must have been dismal, and one would think not calculated to promote the health of the imperial scions. On the approach of winter the Empress used to assemble in it the wives of the great dignitaries, and present them with purple robes. This palace was built by Constantine the Great for the use of succeeding Empresses during their confinement, and those sovereigns who, like Constantine VII., were born there were called Porphyrogeniti. The new Basilica, the chapel of Elijah the Tishbite, the oratory of St. Clement, the victory of the Saviour complete the building.

Professor Aitchison.

(TO BE CONTINUED.)





New York City. ACCEPTED DESIGN FOR BLEECKER STREET SAVINGS BANK. C. L. W. Eidlitz, Architect.



THE ARUNDEL APARTMENT HOUSE.

Baltimore, Md.

Wyatt & Nölting, Architects.



CARYATIDES—"MAIL AND EXPRESS" BUILDING.

Broadway, New York City.

Carrère & Hastings, Architects.
Philip Martiny, Sculptor.



UNITED CHARITIES BUILDING.

Twenty-second street and Fourth avenue, New York City. (From a water-color sketch.) R. H. Robinson and Rowe & Baker, Architects.

ARCHITECTURAL ABERRATIONS.*

No. 5.—THE "DAILY RECORD" BUILDING, BALTIMORE, MD.

IT is related that a good old professor, desirous of illustrating Paley's "Evidences," produced in his class-room his own bulbous silver-cased time-piece and was beginning to argue from it the necessity of a watchmaker, when his exposition was rudely frustrated by an impertinent undergraduate who observed that he could not perceive any evidences of design about that watch.

There are a good many edifices scattered about these United States that recall this anecdote; but there are few indeed that recall it with more vividness than the building of the Baltimore *Daily Record*, herewith illustrated. In a watch, even the professor's, there is in fact a correlation of structure and function, and though there be architects who deny that this is essential to architecture, and others who cheerfully ignore its necessity, yet it must be admitted to be an evidence of design. The designer, if we must call him so, of the edifice now under consideration, had a very trying problem, for he was required to compose a building six stories high on a corner lot sixteen feet wide by something like five times that depth. This is a misfortune that most architects would try to mitigate by making the very utmost of the narrow front through emphasizing its very inadequate breadth, and dissembling, so far as might be, its very disproportionate height. A single opening at the centre in each story would have left a tolerable pier on each side, and emphatic horizontal lines might have "kept it down" into respectability. The notion of cutting such a front into two vertical slices is one that would have occurred to few architects but the one who has not only had but executed this conception. He has, in effect, made two buildings instead of one, in his sixteen feet. This seems in itself a sufficient protection against breadth, but it did not so appear to the designer, for in the wall that is left after the corner tower has been taken off, he has not only introduced no horizontal lines between the ground-story and the attic, but he has actually constructed a single opening at the centre running through four stories so as still further to exaggerate the height of the wall. The sacrifice of the front is made, of course, for the benefit of the tower at the angle, and what an object that is for which to make sacrifices! It will be agreed in the illustration to be an awful monument. The notion of erecting a tower of these dimensions and proportions over an opening, carrying it above the roof, and crowning it with an acute "extinguisher," so as to leave no room for doubt that what is in fact a

* We are making a collection of "Aberrations," and shall present one to our readers in each number of THE ARCHITECTURAL RECORD.

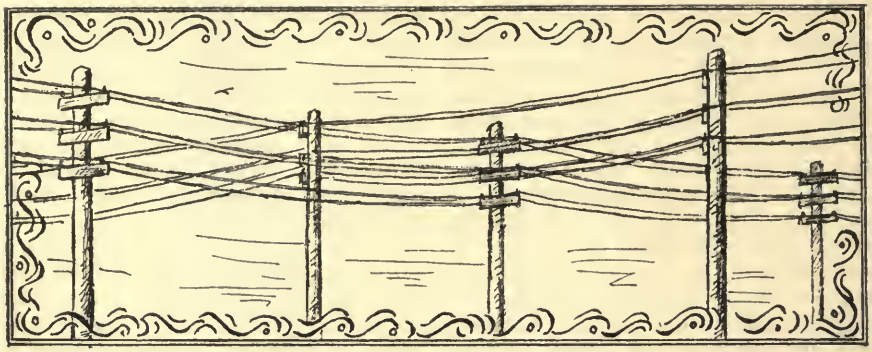


THE "DAILY RECORD" BUILDING, BALTIMORE.

polygonal sash-frame is intended to be regarded as a tower is, as it was meant to be, "original." It is necessary to add that the illustration does not do full justice to the iniquity of this monument. The entire fatuity of the detail can, indeed, be appreciated, but not the fact that not only the sash-frame proper, or tower improper, but also actually the heavy-looking pediment at the base, is made of wood, covered with galvanized iron, and painted cream color, the wall being of dull yellow brick. Anything more preposterous and vulgar it is impossible to conceive.

The same aversion to symmetry that appears on the shorter front appears also on the longer, where there was nothing in the dimensions or proportions to prevent the architect from producing a quiet, respectable edifice. The obstacles here must have existed entirely in himself, and they have proved insurmountable. The unit of the composition here, it will be perceived, is a three-story bay-window in the principal wall, with a round arch over it, a perfectly plain segment-headed window in the ground story and a double-lintelled opening in the attic. This is susceptible of being developed into something good, though it may be remarked that the purpose of a bay-window is defeated when bay-windows are ranged so close together that whoever looks out of the window looks into his neighbor's window. However, if the bay-windows had been equally spaced, with a pier at each end of the wall, something like repose and something like harmony might have resulted. In fact, there is an ample pier at one end, and there is no pier to speak of at the other, three bay-windows are huddled together and a fourth is isolated, and between the group and the single opening is a wonderful central feature which is yet not central, consisting of the pedimented doorway, and above it a piece of wall, crowned with a gable, pierced with windows following the slope of the stairways, two to each flight, of different sizes and different shapes and different treatment. The force of lop-sidedness can no further go. But except lop-sidedness it is difficult to tell what object the designer proposed to himself, or to detect in his work anything like the amount of design that is revealed by even an old-fashioned bull's-eye watch. How a draughtsman can have endured to look at either of these elevations, while it was yet upon a drawing-board and could have been rubbed out, is a puzzling question, but not so puzzling as how he can have given it out for execution in more or less durable brick and pine and galvanized iron, where it cannot be rubbed out except by fire or a well-directed mob. So numerous are the "things" and so promiscuous the placing of them that the network of telegraph wires in the foreground, which would be very annoying in the view of a building that had been designed, seems to belong to this building.

Apparently the artist was dissatisfied with his work only because it was not sufficiently diversified, for he proceeded to add things to it. The variegation of the skyline by means of the extinguisher at the corner, the gable in the long side, and the pinnacles at the outer angles, is a wonderful piece of work. The notion of corbelling out square pinnacles is a repulsive novelty, yet hardly so novel, nor yet so repulsive, as the notion of building out slabs of brick-work, carrying them through a cornice and stopping them against the wall, in such wise as to show that they are quite meaningless, and mere sacrifices to beauty. There is not a piece of studied detail in the whole building, but the badness of the things, taken singly, is not so remarkable as the complete lack throughout of a relation of anything to any other thing. As an example of the absence of design, the building is really remarkable and eminent among bad buildings. We are informed that it is extensively admired in Baltimore, but we utterly refuse to credit that slander upon a respectable and cultivated community.



CROSS-CURRENTS.

A NUMBER of months ago the promise of a new art magazine came to us from Boston. That the seat of publication was to be the New England capital was at once a presumption in favor of the new venture; it would no doubt be free, we thought, from the vulgar commercialism which permeates the very stones of New York, the coarse effrontery of "popular enterprise" which whirls through most things emanating from Chicago, the unfathomable prosyness of Philadelphia. There was not only reason for hoping that it might be an art magazine that held a really serious relation to art, but the prospectus sent anticipation traveling still further. It was to be a pure shrine of art; no booths nor stalls nor tradesmen's cries around its precincts—it was, O Rara Avis! to be without advertisements of any kind, and it was, moreover, to be edited by Devotion and sustained by Love—in plainer speech, the contributors were to do their work without pay, profit or emolument of any sort. There was, no doubt, an air of impracticability about the project which should have stirred suspicion, for never, as in these days, has it been so fatal to be impracticable. The name, too, *The Knight-Errant*, had a ring of phantasy or remoteness (far indeed from art) about it as though springing from the arbitrary working of some notion or crotchet. These matters, however, were overlooked. It was so pleasant to anticipate the coming of a real art magazine which would deal with Art as though it were too important an affair of Life to be either a modish, whimsical plaything, as it is largely these days with the public, or a shop article for publishers to deal in.

The new publication is now in our hands; and alas! this *Knight-Errant* proves to be a luny, Quixotic champion, to whom we might extend the courtesy of silence did it not represent an evil tendency which it is the duty of all to oppose, all who believe that Art is deeper than any single mood, be it ever so sincere, and wider than any single manifestation of the Beautiful, be that manifestation ever so complete, exquisite and enduring.

From one aspect, art is the revelation of personality; the realization of the artist's mind. But it is also the harmonious revelation of the world, all that which the individual is not—the realization of the Beautiful through the artist's mind. Now, it is from the personal phase of Art that we get the schools—Greek, Italian, French, Mediæval art, the art of the Renaissance and so forth, and our shibboleths also—Idealism, Realism, etc., and, indeed, all those divisions and parts of art which we cover with a name. Greek art is the Hellenic mind revealed in Art. Idealism—a wider manifestation—is one phase of the human spirit realized in Art. Greek art, or Gothic art we can imagine completed: conceivably, the possibilities of either might be exhausted, the last letter of one evangel and of the other could be learned. But, Art in its impersonal, universal aspect, is something infinitely wider than the Grecian spirit or the Gothic spirit. It transcends all schools, eludes all nomenclature, stretches beyond the possibility of exact definition. Idealism does not exhaust its possibilities; Realism is not the sum of its possessions. It is the same yesterday, to-day and forever, be it revealed in the Greek Temple, the Gothic Cathedral, Raphael's paintings, Shakespeare's plays, or Beethoven's symphonies.

The conception of Art, which the *Knight-Errant* comes to champion, is, at the widest, a

limited personal conception, in short not art, but a certain phase of art, and it happens that this phase is, we regret to say, at present too often confounded in public judgment with the greater whole of which it is but a part. So far as we can make out, the *Knight-Errant* stands for the resuscitated Mediævalism of recent years, which has deluded the Public into the belief that Art is, in no small part, an affair chiefly of andirons, bric-à-brac, oddity and quaintness, a matter centered in the Middle Ages, or any age other than the age of to-day, and is to be derived by us not by living our own life as completely as possible, but by reflection from old churches and gabled buildings and illuminated missiles. Say the Editors of the *Knight-Errant*: "Far other is this battle in the West that calls the *Knight-Errant* into the field, than the brave fights wherein the Knights of the Round Table fought close and fierce with the Paynim in the name of Christ; other even than that last great fight 'among the mountains by the Winter Sea,' when 'the goodliest fellowship of famous Knights' ceased, and Sir Bedivere went forth alone, and the days darkened round him and the years. It is no longer to strive against the Paynim in the Holy Land, to contend with ravening dragons, to succor forlorn ladies in distress that he is called to action; but rather to war against the Paynims of realism in art, to assail the dragon of materialism, and the fierce dragon of mammonism, to ride for the succor of forlorn hopes and the restoration of forgotten ideals." Here we have Art narrowed to a cult, with a jargon of its own; pressing away from the spiritual vernacular of the day, from the market place, the shop, the activities of the living generation, in short from the sources from which all great art—Egyptian, Grecian, Gothic—sprang. From the point of view of the modern Mediævalist, it is no doubt lamentable that the crusades have given place to Cook's Tourists, that a sound but unimaginative natural history has locked up all dragons in children's story books, and that unpoetic modernism has confided the duty of succoring "forlorn ladies in distress" to the police. The crusaders can never be gathered together again, nor the dragons liberated, and as to the "ladies" I am told the species is extinct; only women (or should we say females and reduce the matter at once to the lowest common denominator) are left.

All these things and much else that accompanied them are gone. The whole Round Table of Arthur is dissolved, because it was not large enough for the spirit of a world greater than the Arthurian to feast at. The old order has changed giving place to new, "lest one good custom should corrupt the world," and there is no inspiration for the newer generation in mere affection for old things.

The *Knight-Errant*, indeed, declares that his quest for beauty is "not to restore a fictitious and evanescent similitude of things that were;" —good words—but, nevertheless, he feels the stress of necessity "to return in a measure to that time when beauty began to fade from life," and the fact is, despite the disclaimer, the measure of the return is scarcely less than a complete retreat from the Present to the Past. "Beautiful things have disappeared," we are told, the world has "grown old and ugly," it has discredited beauty "in thought and motive, beauty in life and death until the word has become but a memory and a reproach." Is not this the complaint of the impotent or the dilettanti against their age? It is a protest against the new forces which, while they may limit the true artist, are also the only vital sources of inspiration for him. The soul of every living art is the life of the day that creates it. The artist may find himself thrown upon barren times, may find his day and generation unpropitious for great works, but he cannot transcend the conditions given to him, or create a really favorable environment for himself by a fanciful retreat into some corner of the Past. To preach the necessity of such a retreat, as the *Knight-Errant* does, is to misunderstand the nature of art, to overlook the prime fact in all great artistic achievement. The Greek artist was great by being so thoroughly Grecian, Grecian even in his defects and limitations; the same is true of the Gothic artist, and of the great masters of the Renaissance. The abiding achievements of Modern Times will be those wherein the vernacular of the day has been most thoroughly and naturally employed.

It is permissible, indeed, perhaps it is a healthy sign, for the artist to be dissatisfied with his age (we are not quarreling with that), but he will not despise it. He cannot get higher than upon its shoulders. Besides, what are our judgments about our own age worth? It is not improbable that our age will be greatest in the estimation of posterity at the very points where we are most intimate with it, where it is most peculiarly ourselves; but are not those the very points which it is most difficult for us to perceive? We know best what we are the least conscious of knowing. For instance, we carry the weight of our own language with less mental stress than a smattering of a foreign tongue. And, is not

a man blind to his own most individual traits? Likewise, we may be sure it is no easy matter for us to see our own Art with the eyes of another generation. Over and over again we have learned that. Much that we ourselves admire to-day we ourselves condemn to-morrow, and we may be sure that, despite the *Knight-Errant*, there are beauties in this "old and ugly age" which some equally foolish fool in years to come will be calling *his* generation to return to and live by. The best thing that can happen for the art of to-day is that the sunlight of the Present shall break in upon it and illumine every nook and corner of it. If, then, flowers do not preponderate among the weeds, we may be sure that no scattering of dead seeds from other generations will create for us a garden for the soul to delight in. —*Primus.*

The epithet Quixotic, which Primus fixes upon the *Knight-Errant*, is, we fear, not unjust. That periodical only makes itself impotent when it mounts the high horse of heroism. Its form, programme and temper together isolate it from the very people it wishes to influence, and if it survives at the expense of its editors and contributors it will survive chiefly as the organ of a coterie. Far from being the champion of forlorn hopes and forgotten ideals, it is the picturesque but foolish victim of a very common and commonplace delusion; it is mistaking steam engines for dragons and wind-mills for giants. What is called modern materialism is not a devouring, consuming monster, it is a prodigious Power that is just beginning to stir the sluggish masses into something like motion; with all its drawbacks it is distinctly a humanizing influence. Like other Powers it is blind; but so much more does it need the assistance of them that can see. Such assistance, particularly when corrective, is sure to prove fruitful, while fruitlessness is the inevitable characteristic of mere opposition. As for the Paynims of Realism, if we may not call them wind-mills rather than giants, we may, at all events, deny them abnormal proportions and brutish nature. "The dirty drab," says George Meredith, "is the price we pay for the rose pink." Every Don Quixote has his Squire Sancho Panza. The two necessarily ride in pairs. The *Knight-Errant*—half-phantom as he is—is, in truth, setting out to slay another phantom—practically of his own creation, and he will never succeed, even in finding his intended victim, until he alters his manner of warfare. He must dismount from his angular steed, doff his battered armor, place his rusty sword among the antiquities in the garret and settle quietly down to make himself more at home among the realities of life. As they find their proper place in his view of things he may recognize among them his old dragons and Paynims transformed into things that are measurably helpful to men and consequently deserving of respect as well as of rebuke.

Primus has, then, something of a case against the *Knight-Errant;* but the case is stated in such a contradictory fashion that we fear his readers will be somewhat bewildered. At one moment the *Knight-Errant* is reproached for a "limited personal" conception of Art; and the "universal impersonal" view of Art as "something infinitely wider than the Grecian spirit or the Gothic spirit" is exhibited for admiration and approval. Moreover, according to Primus, this impersonal universal aspect of Art, while it transcends the Gothic spirit and the Grecian spirit, can not include them, for it is "the same yesterday, to-day and forever," whereas it is very obvious that the Grecian spirit and the Gothic spirit contain, at any rate, many elements of difference. Yet later our instructor tells us that the "soul of every living Art is in the life of the day that creates it," and "that the Greek artist was great by being so thoroughly Grecian, Grecian even in his defects and limitations." But what, then, becomes of the universal and impersonal aspect of Art, which but a short time since was placed before us in such a favorable light? If the Greek artist is great by being so thoroughly Grecian, how can he be also great by being everything which Grecian Art is not; by sharing an aspect of Art which is the same yesterday, to-day and forever? In truth Primus here falls into a very ordinary error. He speaks of the individual in Art as one aspect of Art; and the universal in Art as another aspect of Art, whereas the individual and the universal are not *aspects* of Art at all; both are vital *elements* in the artistic spirit. Each has its place, and the place of each is different. Every work of Art is a concrete living reality, reaching out towards a reality infinitely more comprehensive than itself. It is a great mistake to place the two elements in only an external relation and call them aspects, for the wholeness of the artistic spirit is thereby shattered. "Art," says Robert Browning, "instinctive Art,"

> "Must fumble for the whole, once fixing on a part,
> However poor, surpass the fragment and aspire
> To reconstruct thereby the ultimate entire."

For the fragment, the individual, the beginning

is endlessly related to the Whole—Reality itself; and all that artists have ever expressed or can ever express will serve to suggest only a small share of its inexhaustible nature.

Primus has also failed to point out a way in which the *Knight-Errant* may be useful and in the end influential. Its retreat into the Art of the Past has a certain promise of achievement because of the need which the Present has for the Past. The two should always be vitally related, and in so far as the *Knight-Errant* desires to affirm that relationship, it is undertaking a perfectly proper, and be it added, a very much needed work. Its error consists in using the Past as a refuge from and a reproach to the Present, instead of using it as a powerful and necessary supplement to the art and life of to-day. Erroneous, then, as is its purely negative attitude towards all that is modern, it may have its place if it can only help to bring the Past somewhat nearer to us. This is the service which all reactionaries tend to perform. Thomas Carlyle condemned Industrialism and Democracy, and exhalted the Heroes of the Past —the men who had succeeded in achieving something—and whatever his condemnations were worth, he certainly did not fail to make his Cromwells and Fredericks more real, and hence more valuable to us. Ruskin is as foolishly mistaken about Materialism and Realism as is the *Knight-Errant;* but with all his limitations no man has done more than he to stimulate among English-speaking people the reverential and fruitful study of the History of Art. So we might multiply examples. Indeed, we would not be far wrong in saying that our whole modern historical movement had its beginning—not its cause—in just such a retreat into the past. The Schlegels and others of the Romantic School in Germany found contemporary ideals and opportunities as little satisfactory as does the *Knight-Errant;* like the *Knight-Errant* they, too, beat a retreat into the Past, then an almost unexplored wilderness. It was their studies, and the studies of scholars stimulated by their influence or example which first prompted the application, and finally resulted in the formulation of the historical method.

These few illustrations will indicate sufficiently in what way a periodical like the *Knight-Errant* may be useful. Of course we do not say that it will exert any such influence; we say only that there is work of that kind for the *Knight-Errant* to perform. The History of Art is too much neglected in this country. In our larger universities comparatively little attention is paid to it. Harvard, for instances, offers only one elementary course a year in that branch (which is taken by the students as a "snap"), while it offers two in the principles of design and delineation. Compare with such meagre opportunities as these, the fact that there are seven professors or instructors lecturing on the History of Art, at the University of Berlin. If the large universities are weak in this department, the smaller colleges pay no attention to it whatever. The study scarcely enters into the popular conception of a liberal education. Art is to many well-dressed people merely a matter of spring exhibitions, a rather tiresome but indispensable incident of a European "tour," a desirable something which is to be found in the Metropolitan Museum, editorially proclaimed to be of peculiar benefit to workingmen—anything in short but the crowning glory of humanity, which a man in order fully to live must realize. We believe that lately there has been some improvement in this respect, but the improvement has not as yet gone far enough, nor has it been sufficiently popularized. Fortunately a collection is now being made that, when completed or largely completed, ought to do something to inspire a more respectful treatment of the History of Art in this country. We refer to the collection of casts, more than half completed, for the museum in New York City—a collection which, it is stated, will be, taken as a whole, more complete than that possessed by any museum in the world. In time other collections of the same kind will be made for the enrichment of museums in other cities. Chicago, for instance, with metropolitan aspirations, will not permit New York City to be ahead of her in "Art" for long; and after her rich men have thoroughly established a great university and recovered from the temperamental and financial exhaustion of a World's Fair they will scarcely fail to equip their museum with all the "Art" that history affords—if, indeed, the collection of casts now being made for the Fair will not remain permanently in that city. Boston, too, considering the amount of money that she is spending in the new Public Library building, will not be likely to be niggardly in bringing her Art Museum "up to date," and perhaps in the sacred cause of Beauty she may even in time destroy the Temple in which her treasures are housed and erect in its stead a building that does not spit at the purpose to which it is devoted.

By these means may the *Knight-Errant* be assisted in his self-ordained task of making the Beautiful a little more real to the Present. It is less, however, to the *Knight-Errant* than to the universities that we look for bringing to pass

this result. Hitherto they have been spending their available funds principally in equipping themselves with the expensive laboratories and apparatus needed for the scientific department, and this is natural, for in an industrial community the claims of useful knowledge are irresistible. The time is coming, however, when they will be obliged to spend money more liberally in improving their Art courses. Not only will large sums be left to them specifically for this purpose, but there will be more demand for such instruction on the part of the students. The increased interest in architecture has already in many of the more important universities and colleges been recognized by an enlargement of the opportunities for studying principles of construction, and to a less extent the history of that Art. When the time does come for the universities to enlarge the number of their courses in Art considered as a transition and a growth, the collections of casts already referred to will be of the greatest assistance. It will not be necessary for every university to have its own collection, provided the cities wherein they are situated possess well-stored museums ; and undoubtedly it is the absence of such museums at the present time which helps to make the universities of the country so backward in the matter of Art courses. Museums and galleries, are, of course, intended principally for the public ; but they will always be of most use to students—not merely to copyists, but to students of culture. To read the newspapers one might imagine that the day-laborers particularly delight to wander in pensive observation past painting and statue ; in truth, however, while every opportunity of entering the museum should be offered to the poorest and the meanest, it is not the day-laborer that is materially benefited by what is displayed therein. Above all objects of study, Art demands a qualified medium ; it can convey a vital meaning only to educated adults.

" And what do they gain ?" some, perhaps, may ask. Well ! they gain for one thing the advantage of living at the end of the nineteenth century. People who lack culture, who have failed either from want of opportunity or from want of desire to study literature and art fruitfully may obtain the benefit of centuries of progress in their physical lives and in the laws and institutions of their country, but spiritually they will be in a measure barbarian. They will have failed to transcend their individual limitations and the limitations of their time ; they will have failed to incorporate in their own being, spirit of their spirit, all the momentous, healing, leavening, abiding experience of their race. " What from thy fathers thou dost inherit," says Goethe, " be sure thou earn it, that so it may become thine own." Let no man flout or scorn such a purification and enlargement. We are not recommending culture for its own sake, because culture is only part of life, and will not serve to develop all the possessions of the spirit. But how sweet, how compensating it is ! By means of it the many that are born with little may come into much, may take their humbler places beside them that are gifted. We are frequently reminded that observation does not make up for insight, nor any accumulation for constructive imagination. Neither it does. But we must not confuse these truths with untruths that are frequently deduced from them. Observation cannot displace insight, but insight cannot dispense with observation. The methods of seeking Reality are different, but the end is the same. He who steadfastly, hospitably, patiently, and humbly tries to make the best experience of mankind his own cannot perhaps compass Heaven and Earth, as can one who is gifted ; but by placing himself as completely as possible in relation to the best Humanity has thought and felt, he has surely paid his tribute of self-sacrifice and fulfilled his mission of self-realization.

—*The Editor.*

NEW BOOKS.

Architectural Studies by Henry P. Kirby. Boston: Bates, Kimball & Guild.

Colonial Architecture of Maryland, Pennsylvania and Virginia. Fifty plates photographed and arranged under the direction of Joseph Everett Chandler. Boston: Bates, Kimball & Guild.

Egypt. Three essays on the History, Religion and Art of Ancient Egypt. Martin Brimmer. Boston: Houghton, Mifflin & Co.

Vignola. Seventy-two plates, composed, drawn and arranged by J. A. Leveil. Boston: Bates, Kimball & Guild.

Details of Decorative Sculpture, Italian Renaissance. Boston: Bates, Kimball & Guild.

History of Art. William Henry Goodyear. Illustrated. New York: A. S. Barnes & Co.

History, Principles and Practice of Symbolism in Christian Art. F. Edward Hulme, F. L. S., F. S. A. New York: Macmillan & Co.

L'Art et La Nature. Victor Cherbuliez. Paris: Libraire Hachette et Cie.

Safe Building. A treatise giving in the simplest form possible the practical and theoretical rules and formulæ used in the construction of buildings. Louis De Coppet Berg, F. A. I. A. Boston: Ticknor & Co.

We do not believe that Mr. Kirby's reputation will receive any particular enhancement from the portfolio of drawings which he has published under the title of "Architectural Studies." Perhaps it is not intended that these sketches should be taken too seriously, and, indeed, there is more of the air of sport and whim about them than something more serious. Mr. Kirby has set his pencil aplaying in an airy region where clients and other circumscriptions to the imagination evidently are unknown, and the drawings are the result. This is the impression we get from a great number of the designs, although several of them, we can well believe, "have been made in connection with actual projects." Perhaps we ought not to grumble with the sketches because they possess so little variation of idea, and are mostly matters of towers and turrets and steep pitched roofs. The result, however, although often wontonly picturesque, is not always a good architectural composition. It is apparent that the author is a man of some artistic temperament, of decided poetical tendencies in things architectural, but in these drawings too many parts of the designs seem due merely to a fidgety pencil. The collection could be reduced one-half with immense advantage, and among this smaller number one might find five of sufficient meaning and import to merit some study. The remainder are of small value to the public, and we fancy of little to Mr. Kirby, unless as preludes to more serious work or as reminiscences.

Probably we owe Mr. Chandler's excellent collection of plates to the recent revival of interest in "Old Colonial." However that may be, lovers of good architecture everywhere will welcome this publication, for, contrary to what one might expect at first thought, a very large part of the work that has come down to us from the carpenters and masons, who were the architects of Colonial times, possesses in a marked degree a delicacy, a reserve, the gentlemanly quality of distinction—the very characteristics which are perhaps most lacking in contemporary architecture. The *situs* of this old work was rural. It belongs to the country or, at any rate, to cities very differently conditioned from ours of to-day where building is carried on under lateral compression. Consequently any practical influence to come to us from the "revival" or "fad" belongs naturally to the suburbs and the country. And there it is at work already. Succeeding, as it does, "that absence of style called Queen Anne" it can be but salutary, not only to the beholder, but as well to the designer who had passed into a state of "incoherency" in dealing with country residences. Mr. Chandler's plates are well selected; they cover the field typically. We heartily recommend them to our readers. In size and mechanical execution they are all that can be desired, but we have to point out that the index to the plates is unfortunately not free from error.

Mr. Brimmer's three essays deal with the History, Religion and Art of Ancient Egypt—indeed, in the case of that bygone civilization the three are so bound together that they cannot be treated apart. The essays, we are told, were undertaken for the self-instruction of the author during a recent journey in Egypt. They are therefore chiefly a putting in order of information acquired largely at second hand, and not new utterances on subjects which are becoming wider every year and require changes of opinion and restatements of facts. Mr. Brimmer's Essays —they cover but eighty-six pages, including the illustrations—are a very readable, clear, and in the main accurate compendium of the researches of Brugsch Bey, Maspero and others. The writer, however, keeps to elementary facts, and from the limitation of his space tells his story in outline. The essays make as excellent a textbook on Egypt as any in the market. Mechanically, the book reflects great credit upon the Riverside Press. It is a pleasure to handle it.

RAYMOND LEE.

CHAPTER IX.

DRAWING CLOSER.

ON Wednesday afternoon Ralph set out for the Bungalow. Not for a moment did he doubt that he was on his way to a conventional feast of little cakes and small conversation. He half repented that he had accepted Marian's invitation. His surprise, therefore, was great when he arrived at the Bungalow and encountered a little string of vehicles, from which two or three score of noisy, joyful children were alighting. Marian and Miss Batters were superintending the disembarkation.

"Form into line, children," piped the schoolmistress, whose life had been passed in striving (with how much success, see testimonials) to get select young ladies physically and morally "into line." The usual form of her command was "form into line, young ladies," but Miss Batters was blessed with an acute perception of the infinite difference between orphan children like these, and children whose parents were financially capable of patronizing her establishment. There was a shuffling of little feet, a fluttering of little pinafores, and a great quickening of little hearts when Miss Batters snapped "March," as though it was the velocity of the word that set the children moving, and the head of the column passed through the gates into the garden.

"Where is Clare?" asked Marian, missing some one.

"Here, Miss, here," said a 'bus driver, in a soothing tone, from his high seat. "The little 'un's fell asleep. I was waitin' till you was ready."

A small head, surely not five years old, was resting on his shoulder, and golden hair, tossed by the wind, fell down his back.

"I've got her, Miss, she's safe," he said, descending from the vehicle.

"Whoa, there, you Tom. Oh! Ah!" The 'bus driver was fat, and as he secured each foothold in the course of his descent, he uttered a word.

"There!" Both feet were now on the ground. "She's a gold 'un, isn't she, Miss?"

The man's hand passed gently over the child's hair, and he put her into Marian's arms.

"Thank you, Mr. Hardy."

"No thanks, Miss. I ain't got none, but it does 'un good once in a while to hold 'em. Whoa, you Tom."

The sound of the voices, or the change of position awakened the little girl. She looked for a second into Marian's face, smiled contentedly, pressed closer against her bosom and fell asleep again. Could trust and confidence say more? All the woman in Marian quickened at the touch. Her arms folded more tightly around the little thing. She pressed her lips against the golden head. For a moment there flashed into her eyes the light of that love which men can never quite comprehend. It is only because it has fallen upon us and lingers with us that we can marvel at it.

As Marian turned to enter the garden with the last stragglers of the little cavalcade she found Ralph by her side. He was so far from her thoughts at the moment that his appearance surprised her.

"Am I come too early?" he asked. Seeing the children, Ralph wondered whether he had not made a mistake.

"No, no; indeed, you are just in time, Mr. Winter; but, perhaps, I have misled you. These are my guests to-day" —pointing to the children whom Miss Batters had "lined" along the garden walks—"they come to me once a year. I thought perhaps you wouldn't mind helping me to entertain them. Oh! Miss Batters, *do* let them play anywhere, everywhere; there is nothing to spoil. Mr. Winter, if you don't...."

"Not another word, please, in that tone. I know what you would say. I *do* like children, I assure you, and if you will show me what I can do for you it shall be done."

"For them."

"Very well, then, for them."

"Nôw, children," said Miss Batters, standing general-like in front of her juvenile army, "if you will deport yourselves quietly, as becomes little girls, whose manners should always be gentle and modest, you may play about in these *beautiful* grounds; but be most careful that you do not harm anything."

"May we pick some flowers?" piped a shrill voice.

"Well! Indeed!" cried the head of the Select Establishment in amazement. "What *is* your name, child?"

Miss Batters made the demand as though the name might enable her to understand the abnormal moral condition of a child who could make such a request; and, indeed, we do expect from Polly Perkins what would surprise us in Guinevere De Lancey.

"Dear Miss Batters, let them pick them," said Marian. "Go along, children. Gather all you can and put them in a heap on the lawn."

"What, Marian, those roses!" cried Miss Batters alarmed as scores of little hands attacked the bushes and scattered the full-blown leaves to the ground.

"Yes, everything," said Marian.

"You extraordinary child!" cried the spinster; but there was something in her thin voice softer than her words.

"And who is this little one?" asked Ralph, looking at the child in Marian's arms. As he glanced upward from the child's face to Marian's, he saw it was bright with quiet exultation. Can we wonder that the happiness in the voices of the children around Marian was whispering in her heart, or that *sunshine* and *sunshine* were in the garden—one from a heaven so much higher than the other?

"This is Clare," she said buoyantly, answering Ralph. "She shall be Queen to-day, my Clare. We will crown her with white roses."

"She is your pet, eh?" asked Ralph.

"She is such a lovely child, Mr. Winter. Look at those

little white hands, and those delicate eyelids with the blue veins. Wouldn't you think the light passed through them; and her hair, doesn't it seem to hold the sunshine?"

"It is beautiful," said Ralph. "Beautiful."

"But she is so frail." Marian's voice dropped to a lower key. "I didn't think that anything so sensitive could live. You have no idea what delight can thrill through that little body. We fear whether we can keep her with us. Her heart is very weak. The only hope the doctor will give us is that she may grow out of it."

"That often happens," Ralph said, cheerfully.

"Please God," said the girl.

The garden surrounding the Bungalow was of goodly dimensions and was maintained in excellent order. The broad lawn in front of the house was perfect. The flower beds and shrubbery were almost at the fullness of their summer glory on the day when Marian's children arrived to spoil them. That very morning, Tom Hopper, the earthy old gardener whom Marian had installed at the Bungalow, with his son for assistant, surveyed the result of his toil and complacently felt that it was good.

"Ther hain't a garden in Eastchester like it," he said.

And now the old man's heart was to be broken—he regularly declared it was broken every year "when them brats came." He could not be brought to make his scheme of horticulture harmonize with Marian's philanthropy. To waste the sweat of his brow "in confusion upon a lot of horphins" was an intolerable indignity. For several years past, on the day of sacrilege, he had regularly, gloomily and reproachfully resigned his position, declaring that his heart was broken. Fragile as that organ was, Marian always succeeded in mending it the next day, and the old man would withdraw his resignation, "under protest," he said—a phrase in which he found both comfort and justification for his return upon himself.

This year, when the children rifled the rose bushes and the beds of geraniums, pinks and lavender, the old man declared, as he watched the proceedings in anger from afar, that he "would be blowed if *this* wasn't the last time." By apronfulls and handfulls the children gathered

the flowers, sparing nothing. They heaped them in a large mound in the centre of the lawn, working like a colony of busy ants, running to and fro. Laughter and voices and the trampling of little feet were everywhere in the garden. Marian sat with little Clare in the midst of the growing mound of flowers making a garland. Ralph thought she was more radiant than the roses, as he watched her while he carried on a stiff conversation with Miss Batters. Like the gardener's, the good maiden's spirit was up in protest. Her idea of an orphan was that it was something to be repressed, religiously, of course; for the good spinster was one of those who believe that a narrow charity is a pretty broad road into heaven. Dear me! what a comfort old clothes charity is to many of us, who trade in the cheapest market in the things of Salvation as well as in more worldly commodities? Ah! that rich glow around the heart when we piously bestow an old cast-off coat, or shall we say a petticoat, madam? upon some shivering brother or sister of ours, who will begrudge it to us? The junk-man would not pay very many pennies for either, whereas Heaven is an extravagant purchaser.

"Marian knows," said Miss Batters to Ralph, "that I don't approve in the least of her extravagant proceedings. If everybody acted as she does, it wouldn't be very long before the poor were dissatisfied with their lot."

"That *would* be a pretty state of things," said Ralph, who couldn't resist the temptation to poke fun at the schoolmistress.

"Indeed, it would. Why, none of us, Mr. Winter, would be safe in our beds. It is positively sinful, this entire course of Marian's; but it is impossible to do anything with her. She is perfectly deaf to reason. Look at that little girl in her arms. She is quite unfitting it for its station in life."

"Indeed!" said Ralph. "You don't mean it?"

"I do, Mr. Winter, really I do."

"And what is its station in life?"

"Its mother is a mere washerwoman, and its father, if I may speak of such things, is, dear me! a drunkard—a drunkard, Mr. Winter."

"How terrible!" exclaimed Ralph.

"Yet, there is Marian treating that child as though it were her own flesh and blood."

"It seems she loves the child."

"Dotes on it, all because it's a sensitive little thing that loves flowers. Well, well," sighed the schoolmistress, "it's just like Marian. Everything strange attracts her."

While talking, Ralph furtively watched Marian. He had not yet fully recognized the influence which the girl was acquiring over him; for it was manifested merely in a quiet satisfaction which he felt in being in her presence. Ralph, projecting his own feelings into Marian, had come to possess a belief that she had a warm friendliness for him, that flowed out to him none the less surely because it was, at the moment, an under-current. As with heat in light, Ralph's feelings always expressed themselves in his speech and actions. A girl more self-conscious than Marian would have noticed at once Ralph's attitude toward her; but Marian's eyes were not closely enough upon herself to perceive it quickly; and her soft frankness assisted in establishing Ralph's delusion. We must add to this the fact that Ralph's was a tropical nature and his feelings, were they flowers or weeds, grew apace. He watched Marian with a glow of pleasure, as she sat on the lawn, unconscious of his observation, binding the roses together.

"This is to be a crown for my Clare," said Marian, speaking softly to the child, who sat watching her intently. The little face brightened.

"Just a minute, darling. We must put one or two more roses here yet, and then my Clare shall have it."

The child folded her hands intently in her lap.

"There is a lovely one," said Marian, taking a large tea-rose from the mound beside her. "We will make that the star in the crown, eh?"

The golden head nodded assent.

Marian put her nose to the flower and inhaled deeply.

"Oh, how sweet! Smell, Clare.'

She held the rose to the child.

"Oh," said the child, just as Marian had said it; and the two little hands seized Marian's and the rose that was in it.

"Does Clare want that one?"

The child folded her hands across her breast with the flower between them.

"What, not put it in the crown?"

The little head was shaken for dissent, and while Marian sought for another flower the child nursed the rose and kissed it.

"Once upon a time," commenced Marian in a low voice as her fingers worked amid the wreath. The child's attention was seized at once by the sound of that irresistible Open Sesame to fairy land—old Graybeard, what would not some of us give to feel again the magic of that childhood spell. "Once upon a time, there was a little girl who had never, never seen a flower, for she lived in a great forest where none could grow, the giant trees being so greedy they took all the sunlight for themselves. But, one night a great white rose came to the little girl in a dream, and kissed her, and said it loved her. When she awoke in the morning the room was filled with so sweet a perfume that she longed to go to the rose and kiss it, and tell it she loved it ever so much, as it loved her."

The child's face was uplifted to Marian's eagerly.

"But in all that forest, oh, where could she find the rose?"

Clare's face fell, and she looked sadly for a moment at the rose which now lay in her lap.

"Well," continued Marian, "this little girl went to her godmother, who was a good fairy, and told her she wanted to see the rose. And what do you think the godmother told her to do? She bade her go alone far into the dark forest, to a distant spot where the wind had smitten down one of the arms of the great trees, so that at night time the moonlight came in from Heaven and made a little silver pool. Well, the little girl set out that morning, and all day long wandered into the woods. The black night came and she was very frightened and hungry and tired before she reached the broken tree and the silver moonlight pool. The little girl searched the pool for the rose; but it was not to be seen anywhere. There was only a great ugly toad there, sitting right in the middle of the light, blinking at her with his big green eyes. The little girl was so sad she began to cry."

Little Clare, too, was downcast.

"And the big toad asked her what she was crying for; and, as she told him, she crept up to him, for she loved him because he spoke kindly to her, and stroked his back, oh so softly, for fear of hurting him. But, as soon as she touched the toad, he vanished, and on the very spot where he had been was a big white pearl. Do you know what a pearl is?"

The little head was shaken.

"It is like that in this little pin of mine; only the pearl I am speaking of was so big that the little girl was able to sit on it. But she wasn't as big as Clare is. When she left her home she was; but, the moment she touched the toad she became no bigger than the point of this little green thorn on this rose. Only the little girl didn't know she had changed. She thought she was just as big as ever. So she sat on the pearl, very, very lonely, wondering how she could get home again. Now, the Dew saw her as he came through the forest, and he built a little glassy bell around her. It was just like a bit of the rainbow, and it shut her in. The air inside the bell was sweet, like the rose she had seen in her dream, just as the air around my Clare is—you smell it, don't you?—well, that made the little girl happy, so that she sat quite still and looked out of her bell and saw the moon sail away with her long silver robe and the sun come out. And presently the sun stood high up in the sky, right over the pearl, so that the dew-bell, where the little girl was, shone like a diamond. Mr. Winter, please lend me your ring."

Ralph brought her the piece of jewelry, of which he was very proud.

"That is a diamond, Clare. See how it sparkles!"

Clare clapped her hands as Marian made the stone sparkle in the sunlight.

"Now, that is what the little girl's bell was like. But, the Sun wanted the bell, for really it was his. The Dew had only borrowed it from his great palace. So the Sun dropped down a golden chain and fastened it to the bell and began to draw it up to him. He carried the bell and the little girl in it up above the trees into the sky, so high

that the little girl couldn't see the forest as she looked down. Now, the Winds, which are always wandering about, saw the bell going up, up ; and it was so bright they seized it and commenced to play with it. They swung it to and fro, on its golden cord like that (Marian swung her watch by the chain), only they made it swing, oh, so far that way and then this way, that the little girl was rocked fast asleep. High, high above the clouds, I cannot tell you how high up, there is a rocky ledge, and the Winds, boisterous in their play, blew the bell against it so that the bell broke, and the little girl was left sleeping on the ledge, on a bed of moss. When she awoke, the sky was pink like this rose, and when she looked over the ledge she could see all around her and beneath her nothing but lovely pink clouds. But behind her, where the land was, far back, stood a great palace made of gold and pearl. A wide path of flowers led to it, and the flowers whispered sweetly as the little girl passed over them to the great steps and up into the palace, which she found was bigger than all the world and filled with ever so many children whiter than any pearl. They were singing, and oh! my Clare, they were so happy."

Marian's eyes were full, her voice quivered, she folded Clare in her arms. The spirit of the story had grown too big for fairy land; it had passed into a vaster region of enchantment, which is encompassed only by angels' wings.

"And the children begged the little girl to play with them, but she wouldn't, for she had not yet found the rose. She passed through the children, on, on, till she came to a throne of gold where a great, kind King sat, and there she saw on his breast her white rose, the rose that had called her in her dreams. The little girl was so glad that she cried for joy, and the great King, when he heard her, stooped down and lifted her into his arms and kissed her, as she told him, with her head on his breast, that she loved him. For the rose was the great white heart of the King."

In spite of herself, a few tears did escape and flow down Marian's cheeks. The compass of the story, of course, was far beyond the reach of little Clare's apprehension; but, her childish imagination made use of the tale as far as it was able to, and the little thing was pleased. As to Marian,

her heart had been singing to itself as well as to the child, and she, too, was happy. Her face was radiant when she turned to Ralph.

"Mr. Winter," she said, striving for composure, "please tell the children to come here. The crown is finished, and here are the garlands, white and red ones. Which does my Clare like best, the red?"

"The white ones," said the child.

"Well, the crown is for Clare, and that is all of white roses, except the big one in the middle."

Miss Batters had captured the entire little army of children, and had imprisoned them in a corner of the garden while she explained to them where it was and how it was the bee extracted the honey. At Ralph's summons they scampered readily enough to Marian, who formed them into two wide circles, linked together with the garlands she had made. In the centre of the rings she placed little Clare, and crowned her Queen, and covered her with flowers. Then she joined hands herself with the children; and singing, they danced, circling around the child. Ralph felt his own heart beat unwontedly. The summer sunshine, the joy of the children, the new light even brighter than the sunshine, that shone in so many little pale faces, and the sweet spirit of the mistress of the garden, which was the life of all he was witnessing, moved him deeply. It threw into such sharp contrast, he thought, the very selfish and worldly activities of Posner and his "mu-sik tem-per;" his father and the great Tee palace, and the Rococo movement; his professors at Harvard and their cold pedantic aims; the Rev. Septimus Blessing and his dull sanctimony; his own weak, sensuous inactivity—ah, surely, he thought, God is here if he is anywhere, in the light and sweetness of this moment.

But, ah me! a Shadow, too, was in the garden—the Shadow at whose dark feet we all have to lay, sooner or later, every precious possession of life—our loves, our enthusiasms, our hopes—and one by one see them crushed to dust; everything, until we ourselves creep to the Conqueror, and kiss the foot, and yield ourselves to its pitiless power.

Still, the little feet danced around and around, and the little voices filled the air:

"This is the way we all go round, all go round, all go round,
This is the way we all go round, early in the morning."

"Ha, ha!" cried a tall man entering the gate. "Go on; don't stop."

"Mr. Fargus!" exclaimed Marian in chorus with several others. Plainly, the visitor was well known.

"Round we go!" cried the clergyman, dropping the portmanteau he carried and joining hands with the children. "What is it? This is the way we all go round, upte-dound, upte-dound"—and he sang out loudly.

The appearance of Mr. Fargus stimulated the children. Their feet quickened, and louder than ever their voices rang out. Ralph was forced to join in the chorus. Little Clare too, sang, and clapped her hands in glee. The blue eyes sparkled with joy, and the golden curls swung to and fro with the music.

"Hurrah! Hurrah!" cried the clergyman. "Hurrah for Queen Clare!"

"This is the way we all bow down, all bow down, all bow down.
This is the way we all bow down. . . ."

So runs the song, but the song was never finished, for the Shadow stepped into the dancing circle and it fell upon the Queen. Did the Shadow join hands and sing, too, "All bow down?" An arrow in the joy struck little Clare. Her heart stopped. With a look toward Marian, the Queen's head sunk upon her breast and she lay amid the flowers.

* * * * * * *

Little Clare was buried in the cemetery that sleeps on one of the hills overlooking Eastchester. Inexpressibly deep is the sorrow that haunts its green lawns and plots of flowers and shaded, winding pathways. The sobs of how many broken hearts linger around each white headstone? how pitiable is every indication of the struggle of affection with Death and Time, to perpetuate the loved ones? That bed of pansies fluttering in the wind like captive butterflies—*she* who is beneath, loved them. "Sacred to the memory," sa

an aged, tottering stone, and as we pronounce the half-obliterated name, what meaning has it now in all the world? It awakes not a single memory, stirs not a single heart. Its magic is gone. It is a dead thing. "Is not my victory complete?" cries Death in triumph. "Four short generations ago *he* made these hills yellow with the harvest, and gathered his children around him at evening and taught them of God. Of what use is even the stone now?" Ah, Conqueror, what can we mortals say to thee? Over our dead the angel Hope watches silently, and in her keeping are all our forgotten names.

It was the first time in Marian's life that Death had touched the deep sorrow chord of the heart, and to its vibrations every other chord now moved in sympathy. When she returned home from the cemetery, it seemed to her, as she looked about the familiar place, that there had come a pause to her old existence, a hush to its activities. She endeavored to busy herself, but her hands were listless, and her thoughts persisted in flying away to the little grave beside which she had stood that day.

"Ashes to ashes, dust to dust," Mr. Fargus' voice filled the silence. The sun sank in the glow behind the hills. "I am the Resurrection and the Life" Marian heard, as she watched the crimson in the West fade and the twilight steal quietly over the earth. Loneliness came to her as the darkness spread over the garden, and she was glad to welcome Ralph when she saw him coming along the walk to her.

The events of the last few days had not been without a profound influence on Ralph. They had loosened somewhat, as such experiences are wont to, his touch upon his old life—the outer world whence he came into Eastchester. His sympathies and feelings became more at home with his new friends. Particularly, he felt drawn towards Marian. The spell which had been working upon him since his arrival was complete. The voice of his own heart became audible to him. "I love her," it said, and Ralph was conquered. Was it a commonplace conquest?—philo-progenitiveness taking to housekeeping—the dull, colorless, ephemeral passion which often is dignified by the name of love, or was it with Ralph a vision that had burst in upon him of

a wide charmed sea? *Θαλαττα.* The sea! the sea! Have not some of us felt the ringing exultation of the old Greek cry when during the weary journey through the commonplace of to-day's life we catch sight of the wide prospect of the magic waters of Romance where Love is Lord? Golden is the sunlight that dances upon that sea, the winds whisper music which tempts and yet defeats the power of song, and we know that below the horizon, whose bright light beckons us from the shore, stretches the unmeasurable world of our ideals. "Mere delusion, stuff," cries our practical friend, who believes in nothing that won't bear his own weight. Delusion! Well, good sir, what is there that is not delusion? Are your narrow commonplaces, your ledger account of Life any less of a delusion than our romances and ideals. The final hunger of the Last Man dying will be for an ideal. The human race is only to be saved from mockery by the truth of its dreams. As to Ralph—well, we shall see. Love at the very first is always a trifle afraid of its own shadow.

"I am glad you are come," said Marian.

"Are you?" asked Ralph. He held her hand for a moment longer than usual. "Mrs. Carrol has gone to the Cathedral with Mr. Carrol, and, as she thought you might like to come too, she asked me to call for you."

"Both of you are very kind," said Marian. Ralph noticed the sadness in her voice. He would like to have tried to cheer her, but he felt the effort would be vain and that silence was best.

As they entered the Cathedral Close, they could hear the organ rolling forth like a solemn evening prayer. Mr. Carrol had left the north door ajar for them. Entering the building, its darker twilight, deeper shadows and stiller atmosphere constrained them almost to a sudden pause. The great aspiring piers and spreading arches, the high, shadowy roof, the silent tombs, the ghost-like statues of the dead of many centuries, the mystic distances along the nave and aisles, faintly lit by the pale flush of the vast stained-glass windows, all was instinct with, and indeed seemed bound together by, a solemn, sanctified peace. It stole in upon the heart, made it, too, one with the building, so that

it was as though for a time it beat within a larger frame, to the murmur of prayers, the echoes of chants, the whisper of sacred hopes; for surely every wandering footstep, every beating heart, every uplifted voice that had ever been within the building lingered in the spirit of the place.

Themselves like shadows, Ralph and Marian stole into the organ-loft and took a seat beside Mrs. Carrol without speaking a word, in order not to interrupt the old organist. No one could be more sensitive than Ralph to the influences of such a moment and such surroundings. Old Mr. Carrol's musical ideas were commonplace enough, and his power of expression limited. Yet, despite the deficiencies, his playing set chord after chord in Ralph's heart sympathetically vibrating until, for the younger man, the air was ringing with melodies and vast harmonies to which the old organist was deaf. Marian's feelings, too, against which she had been struggling all day, were heightened by the moment.

After a while, the organist ceased playing, and sat irresolute.

"Let Mr. Winter play something, Mr. Carrol," Marian whispered.

Without a word, the old man arose and gave Ralph his seat. No moment so attuned to every aspiration and feeling had ever come to Ralph before. It seemed to him as he glanced upward that the pipes of the vast organ were huge golden bars imprisoning a great spirit. His fingers tingled for a full touch of the keys; and when they descended on the board the whole soul of the man went forth in the triumphant roll of the organ that burst forth like a cry and echoed with a hundred voices. The spell that had bound Marian all day was broken—the pent-up tears were liberated. Ralph has never had any idea of what he played that evening; whatever it was, it was completely transfused by his own passion and was a perfect expression of his feelings.

The first outburst of the organ had scarcely died away, the music had just sunk into a softer strain, when our friends in the organ-loft were startled by the uprising of a voice from the darkness below them. It was so clear and

sweet, so perfectly attuned, in spirit as in tone, to the music, that it didn't break in upon Ralph as an interruption, but, as another and subtler inspiration and impulse for him to bear along. The first sound of the voice thrilled Marian like a lonely cry in the twilight. It was instinct with her own sadness and longing for comfort. It was what the organ tones were not—it was human. Instantly, Ralpn felt that he and the singer were one, their hearts beating in the same rhythm, throb for throb. From height to height the inspiration carried Ralph, but high as he might go, he could gain no mastery over the voice. The ecstacy of the moment was such as Ralph had never experienced before. His entire nature was at the pinnacle of exultation; it cried in triumph through the music. He liberated the whole power of the organ, the gloomy air of the Cathedral seeming to tremble under the power and passion of the song. Higher and higher the music rose, but from height to height the voice of the singer mounted easily with it. Only once in a hundred lifetimes do these full moments come; but they, too, pass away as all things pass away, and as Ralph ceased playing his very soul lingered with the last echoes as they died in the vast building.

"Brother," cried Ralph, excitedly, as he arose from the organ, "you have been with me where I shall never be again."

"Who is it?" asked Marian, almost as deeply stirred as Winter.

Ralph hurried down from the loft, making his way as fast as he could in the dimness, which had deepened apace. He caught sight of somebody like a shadow hurrying for the open door at the end of the transept. He reached it barely in time to intercept the singer, who pushed past him without a pause out into the Close.

"Who are you, friend?" asked Ralph.

"God knows." The bitterness of the reply startled Ralph. Before he could speak again, the stranger, whoever he was, was gone.

CHAPTER X.

BUT ONE STEP MORE.

A FEW days after the events recorded in the last chapter, Mr. Pilgrim found it necessary to visit London in search of material needed for the "great history." That gentleman frequently found the thread of his narrative tangled with his facts, and to straighten matters out usually had to hurry off to the metropolis to explore the libraries or purchase a small wagon load of books.

Mrs. Carrol had divined the state of Ralph's feelings for Marian. One evening she hinted playfully that she feared "somebody" was planning to rob her of her "treasure." Ralph was quite willing to make a confidante of the old lady. He frankly confessed his "presumption," declared that Marian was the perfection of womankind, and acknowledged that his heart, inadequate as that very inferior article was, had been completely given to her. Of course, Ralph made his confession in perfervid language, which we spare the reader because it adds nothing to the fact.

The open acknowledgment of his sentiments gave Ralph somewhat the feeling of being formally established in his position, particularly as the old lady said, at the close of his declaration:

"I would like to see Marian married. I think it would be a good thing for her. But, you must see, Mr. Winter, her thoughts, so far, have run little in *that* direction; not that it signifies anything, for girls that marry soonest are very often those who have determined never, never to wed. Marian is tied, however, to what she regards as her work, and I am inclined to think she will not yield easily or without a struggle with herself. You must be discreet, Mr. Winter, and *very patient.*"

The old lady emphasized the last words significantly. When Ralph thanked her for her advice she said perhaps she could help him. She would see.

Probably Mrs. Carrol was carrying out part of her scheme of assistance when she insisted that Marian should stay with her while Mr. Pilgrim was away in London. As the old lady seemed so bent upon having her way Marian kissed her and consented. There was one room in the organist's home which no one but Marian was ever allowed to occupy—the room which had belonged to the old couple's daughter.

Mr. Pilgrim was in London for nearly two weeks, and during that time, naturally, Marian saw a great deal of Ralph, although she spent the greater part of the day at her schools at Smeltham. She was driven to them early every morning, returning home in the afternoon ; but in the evenings she strolled with Ralph and Mrs. Carrol through the lanes and roads of Eastchester and the country around, or sat in the parlor listening to Ralph who, at times, played without interruption even by so much as a word until the evening was far spent. In this way the acquaintance between Ralph and Marian passed into a familiar friendliness which naturally was very delightful to Ralph. His exaggerated attitudes, his over-strung admiration of admirable things, his sweeping denunciations of what displeased him, his fierce, fighting opinions, quietly amused Marian, who had a gentle sense of humor which was always wide awake. But she perceived behind the exaggeration a certain stable earnestness which she admired. She told Mrs. Carrol she thought Mr. Winter a very interesting man, a statement which drew from the old lady:

"Yes, dear, *I* find he improves very much, the more one gets to know him."

These quiet evenings were the pleasantest in Ralph's life. It seemed to him he was on the very brink of complete happiness, merely abstaining for a brief time from seizing the bliss that, after all, was really his. The self-repression he felt he was exercising possessed a sort of subtle ascetic sensuousness which I think is ofttimes even more delightful than complete enjoyment ; for appetite therein is ever keen, and imagination never sated. There was not a discord in those peaceful days. They

were of the kind that bring sunshine into Memory forever.

The Egotist is seldom very far away from the lover. When the Princess arrives we hasten to don our most becoming clothes, for the inner man as well as the outer; and, from the real King downwards, who can wear his "best" without posing? Old Mr. Tuck, of Tuck & Bias, the Fifth avenue tailors, is of a philosophic turn of mind, and has a very interesting work, still unfortunately in manuscript, treating of the beneficial effect of clothes upon the physical and moral man. He is courteous enough to read it, in parts, to certain of his customers; and I must declare, even at the expense of being, by the uncharitable, suspected of disingenuousness in revealing the fact, that I was deeply interested by his account of how many cases of physical and moral slovenliness he had cured by frequent additions of fine clothes to the individual's wardrobe. Ralph attired himself in his spiritual "best" for Marian; and if we, who know him too well to be deceived, find him posing a little at times, we mustn't be surprised or think very badly of him. The world is forever trying to draw men's characters with straight lines. The feat is as impossible as to depict their faces in straight lines. If the portraiture is to be truthful, the lines must cross and curve and blend and loose themselves in one another. Not only are men not good or bad, but I am half inclined to think it may be said that every excellence and every defect of character *must* have its reverse side; at any rate, in the present condition of human nature it usually has. The kind, loving, charitable heart lacks moral firmness with others and shuns dealing sternly and righteously with a brother's failings and weakness. The clear, strong intellectual vision, like a perfect lens, is achromatic, deficient in poetic color. The busy worker is a poor dreamer (and the dreamer, too, has a place in the world, though a despised one these days). The keen touch for actualities, lacks the forward feeling for possibilities, generosity tends to become a spendthrift, and Justice cannot forgive.

After the garden party, Ralph had a strong desire to visit

Marian's school at Smeltham, so one morning our two friends arranged to walk over the hills to the manufacturing town which was some five miles distant. The Marl, as it flows through Eastchester, is a slumberous stream. It meanders among the hills as though it loved the way. It is navigable to an extent even further up than Eastchester, and cumbersome, barge-like boats can be seen at times creeping up through the hop fields and corn fields to the old Cathedral town, laden with coal or some such bulky commodity. The road from Eastchester to Smeltham keeps, as it were, within elbow touch of the river on its way, and it was along it that Ralph and Marian set out. The summer was in its fullness; fields and gardens and hedges and trees were all at the height of their glory. Like a true wanderer, who doesn't count his steps, but seeks rather a direction to travel in than a destination to reach, the Smeltham road meandered, like its companion, the River, between the hills, past old farmhouses and residences, often only the roofs of which were visible among the trees. The weather the day before had been stormy, but now the sun was triumphant and a brisk, fresh breeze was driving huge fleecy clouds across the blue sky like remnants of a retreating army. Ralph and Marian had to breast the wind, which was so strong that it impeded progress. On the hill tops our two friends had to bend forward to meet it.

"Oh, isn't this exhilarating?" cried Ralph, loudly, for the breeze whirred in his ears.

"Yes, delightful," cried Marian, busy trying to keep her hat in position and wayward locks of hair out of her eyes.

"Grand," said Ralph. "This is the weather I like. It stirs a fellow to motion. We get so little of it in America. Do you know, Miss Marian, I'm getting to like the English climate."

"For a good American," said Marian, "I'm afraid you are getting to find too many charms in England."

The words went further than Marian dreamed of. Ralph looked at her for a moment.

"Yes," he said, "I'm in love with a great many things in England."

"We'll make a monarchist of you yet, Mr. Winter."

"I wouldn't object a bit, if I could choose my own kingdom."

"What kingdom would your Republicanship select?"

"The United Kingdom of course," Ralph said, smiling at the double-sided conversation.

"You couldn't make a better choice, Mr. Winter."

"I am certain I couldn't."

"I shall have to tell the Dean of this and your—friend, Mr. Kneesman." Marian laughed; Ralph laughed, too.

"Oh, wait 'till I'm King."

"You are being naturalized very quickly, Mr. Winter. How long have you been in England?"

Ralph told her.

"And nearly two years in Germany. You must long to be home again?"

"On some accounts, yes; but I haven't accomplished yet what I left home for."

"May I ask what it was? You have never told me?"

"Certainly," said Ralph; "but to make matters plain I must tell you a little more than you ask. Do you care to hear?"

"Indeed, I do," said Marian, earnestly.

"Well, then," began Ralph, and the Egotist drew a picture of his life, the perspective at least of which was quite subjective. Certainly no one else would have viewed his life exactly as Ralph did, nor would any one else have made the central figure *quite* so interesting. That is to be expected however. Every man's account of his own misfortunes, failings or disappointments is largely a story of how he was sinned against or defeated in his good intentions by somebody else. The successes of our lives are wholly our own; it is our failings that we share in so liberal a way with others.

"A useless life," said Ralph, in conclusion, with disingenuous frankness. "I wonder what is yet to come of it."

"Great things, I hope," said Marian.

"Do you really?"

"Of course I do."

"It would help me, Miss Pilgrim, I think, if I felt I had to justify your good opinion of me."

How excellent an opportunity, fair reader, for a little sentimental byplay! How easy to drop a handkerchief to the mock knight! Perhaps he may pick it up and really treasure it, but pshaw! what matters it if he does not; cambric is cheap. But Marian was not given to playing sentiment. We may divide mankind into two classes; those who say more than they mean, and those who mean more than they say. Of the former was Ralph's, and his speech sounded weak and false to Marian. Character, she thought, should stand firmly on its own feet, and not morally be a dependent upon anybody else.

"You don't mean that, Mr. Winter, I know. I am sure you don't need any such silly help as that to do your part in the world. You have your duty to fulfill, not an opinion of mine to justify."

Ralph winced.

"Duty! Miss Pilgrim. With a man duty, in the large sense usually is his ambition. I wish somebody would show me what my duty is. I mean beyond merely pointing to the general moralities. Duty! Pshaw, it's as much a Will-o'-the-Wisp as anything else we run after. Now it's here and now it's there."

"May not the instability be in yourself, Mr. Winter."

Ralph admitted the possibility.

"I think it is *you* that are unstable. You have the artist's temperament, Mr. Winter, you are *selfish*." The last word was uttered emphatically. This vigorous pushing home of criticism wasn't pleasant to Ralph.

"Selfish!" he repeated, awkwardly. "Well, I suppose I am; few of us are as generous either in *word* or deed as we should be."

"Are you trying to hit me?" Mr. Winter. "By selfish, I do not mean that your hand or your purse is closed. Perhaps selfish is not the word I should use. By selfish, I mean you are the centre of your own life; *you* are your own life; you rest in yourself. A few minutes ago you said your life had brought you few satisfactions, that even these were fleeting and disappointing; that unhappiness was the under-current of your existence. That is natural. What reason have you for expecting anything else?"

"And why not?"

"Because he who seeketh his life shall lose it."

"Texts, texts, Miss Marian. To order one's life by texts and expect to make anything of it is about as hopeless as—as—well, trying to run a locomotive with paper."

"Ought we to reject the truth because it is given to us in a text?"

"No, no! not if it *is* the truth, of course."

"Ah, Mr. Winter, it *is* the truth that I tell you. Your own career should testify that to you. You have been a seeker from the first of your own life and you acknowledge that you have realized nothing, not even from your music, your last and fullest search for yourself."

"But wait," said Ralph, significantly.

"Ah, wait! Time will make no difference; the hundredth experiment will be as the first. There is nothing in your music to save you. It is a degraded thing at best, Mr. Winter; a noble gift which you are using as the servant of a narrow personal gratification, something that in a way whistles your moods and then bows to you and says: 'Oh, Mr. Winter, how admirable you are.'"

Despite the earnestness of the girl, Ralph could not refrain from smiling. At the same time her words had gone home and were whispering uncomfortably in Ralph's inmost soul.

"No wonder, Mr. Winter, you do not believe in Christ. I see it all now. We must understand the Christian life first before we can understand Christ, who is the sum of it all. Beyond Christ is God, and with God is immortality and all that we hope for, but only dimly comprehend."

Ralph was silenced. Marian waited for him to speak.

"Surely," said Ralph, "Faith is the only road to Christ; and, believe me, I am not perverse. I cannot find Faith. Faith is a matter quite beyond our control. It is something given to us. Am I not right?"

"Not quite, Mr. Winter, I think. I believe it is possible to build up our faith in the Christian life little by little, until at last we reach Christ through it."

"Proceed experimentally; construct our Faith, as it were, scientifically?"

Marian objected to the phraseology. Science was

scarcely more than a name with her of something reputed to be very disturbing to Faith, and consequently to be feared. However, she answered "Yes." Neither spoke for a moment.

"How would you advise one to proceed?" asked Ralph.

Marian was looking over the hills, half lost in thought. Her eyes lit with anticipation when she heard his question.

"Do you mean it?" she asked, turning to him.

"Yes," answered Ralph, half in earnest.

"That is good, Mr. Winter," said the girl, joyfully, and the accent of gratification pleased Ralph.

"Take any one of Christ's teachings, that very one we were speaking of a moment ago, and see if as you live for others you do not find your life happier and fuller than it has ever been."

"But may not that be a very self-seeking life, doing good in order that we may be happy ourselves?"

Marian was confused for a moment.

"That musn't be your motive, for what we are striving for is not to be selfish."

A turn of the road brought Smeltham into view before our two friends. How unlike Eastchester, this town of to-day! Factory chimnies, huddled houses, grime, smoke, din—all charm, all peace, all enchantment gone. Even the heavens could scarcely be seen through the smoke, and the fresh waters of the Marl, as the river flowed through the town, under arches and between canal banks, were polluted with acids and dyes, and the scourings and refuse of scores of factories. And for what? What had been obtained by this great sacrifice of the soul's possessions. A larger humanity? or merely a larger market, full of things? A civilization of calicoes and brass and iron goods, or greater dignity of life. Hard as it is to believe, let us hope the best; let us pray for it; let us work unceasingly for it. The cost of modern life is tremendous. It is appalling to count. It staggers the soul. On Fifth avenue, dressed in fine linen, after an excellent dinner we can be optimistic. The drowsiness of comfort is on the eyes. What magnificent homes! What elegance! What lovely children! What handsome women! How perfect the dressmaker's

art! There is millionaire Tallowfat and his wife in that handsome equipage with those really (will no one tell Tallowfat of it?) *too* gentlemanly-looking flunkeys. There is the Billionaire Club, where the other day, so the newspapers say, who are delighted with such things, young Maltby, the great brewer's son, called for a Cleopatra cocktail, in which a pearl that cost nearly a thousand dollars was dissolved. Who, with these indubitable evidences of the worth and greatness of our civilization, can fail, my dear sir, to be optimistic. Dare we stop to think of what lies underneath all this—the squalor and dirt and din of our factory towns and factory existence, that vast engriming of humanity that accompanies modern life, the dirty existence which the masses lead which one may almost say is founded upon the factory, and factory conditions? Among Tallowfat's 1,600 workmen I happen to know that there is one, Jenkins, a miserable bag of bones, so thin you would think he made tallow of himself every day. He has been "blessed" with four children, and the eldest is dying of consumption. They live in a close, fetid tenement house in New York, over a butcher's store in Tompkins square, one of the East Side "People's breathing places"—dusty, trodden grass-plots, littered with paper and old tin cans, where a few stunted city trees struggle for life. I happened to be passing that way some weeks ago. Knowing that the girl had had a relapse, I made my way upstairs through the smells and children to the Jenkins' apartment. "Oh, Mary is *much* better," said Jenkins' wife, who was "cleaning up" in a sort of tornado fashion. (Why is it the poor are always "cleaning up," ever without visible results?) "She's in the front room." I passed through the narrow, dark, shaft-lit chambers, where the night smell of the unmade beds was still quite strong, to the parlor—(Oh, the fearful machine-made furniture and chromo-pictures)—where I found Mary propped up with pillows at the window. I asked her if she was enjoying the sunshine. "Yes," she said, smiling faintly. "It's so good. *It's like the country* look-

ing out here. The doctor said I oughter go to the country, but this is almost as good."

Hear this factory child, ye nymphs and dryads of stream and wood. Tompkins square! I took a peep at the "country." The whole picture was too sad for words, for at that moment it occurred to me that the Sunday previous the papers published an adjectival description of 'l allowfat's new "cottage" at Tuxedo. Why! the wines served at one of the millionaire's swell dinners would have kept Mary in the country for months. Shall we take off our hats, Reader, and hurrah for this sort of civilization, and declare that it is all right because it is not easy to prove logically that it is all wrong? Argue as we may, the heart cannot be satisfied with the spectacle of the tragic contrast between the rich and the poor—"the State in a fever," to borrow old Plato's phrase. Despite the harsher judgment of our financial sense, we turn with longing to the dream of a simpler, sweeter life.

Smeltham is noted for its tanneries, iron works and breweries. Englishmen are very proud of the town. Its manufactures go to every part of the globe, and, like Manchester, Birmingham, Sheffield, it is one of the props of Britain's "greatness." It is quite as filthy as the worst of our purely manufacturing towns, but comparisons are not necessary. It is very squalid, very dirty, very prosperous; except in the central pa:t it is a great huddlement of factories and workingmen's homes. Marian conducted Ralph rapidly through an entanglement of narrow, winding streets. The girl was evidently well acquainted with the way.

"Is this your route every day?" asked Ralph.

"No, except when I walk. Usually I drive to Miss Spinney's house and then walk to the school with her. Miss Spinney has charge of our little girls. We are late this morning. She leaves home at half-past eight."

After the pleasant morning tramp over the hills from Eastchester, each step of the way into Smeltham seemed to Ralph like a descent into a dreary inferno of ugliness, where creatures were confined who had committed some crime against the nobility of mankind.

"This place is enough to make one shiver," said Ralph.

"It is not very pleasant," said Marian, gravely, "but the greater part of Smeltham is no better."

"What sort of life can people possibly live in a hole like this?"

"Thousands know nothing better. They are born and live and die here."

"It's fearful," said Ralph.

"Ah! Mr. Winter, you must get beneath the surface if you really want to see what life is here."

"Poverty, drunkenness, misfortune, I suppose."

"Yes, there is that; but the worst feature of all is that so many human beings are part of these surroundings, born from them you may say. There is the school, Mr. Winter, at the end of this street."

"The low factory building on the right?"

"Yes. It was used as a small tool factory. We moved into it only a short time ago. We whitewashed it inside and out, put in new windows, and are much better housed than ever before. We were on Pitt street, the second turning from here."

The street which Marian and Ralph had just entered was only a few hundred feet long, terminating at the river. It was lined with a number of low, irregular factory buildings, brass foundries and ironworks, whence issued the din of busy hammers. The school was a structure two stories high, the upper of which was reached by an exterior flight of stairs. The passer-by would have mistaken it for a workshop, but for its clean, tidy look, and the words "Tubal School" painted in large black letters on the front wall. The legend formerly ran Tubal Iron Co., and when the repainting was done Marian let the old name stand, merely changing the latter words in accord with the new use of the building. The ground floor was a single barn-like room, the ceiling of which was supported by rough iron columns. It had been converted into a school-room, as Marian had said, by filling in the windows with glass, by whitewashing the walls and ceilings, by laying a wooden floor, and building a large brick fireplace in the place where the big forge fire had stood. Several maps and a number of framed engravings

taken from the illustrated papers decorated the walls. The window sills were filled with hardy plants. These additions, with the ranges of desks and the blackboards completed the furnishings of the room. When Marian and Ralph entered, about two hundred children, boys and girls, apparently of every possible age, from four to perhaps twelve, were standing in long rows before a harmonium which one of the teachers was playing. They were singing a simple air. The voices dropped almost to silence when it was seen that a stranger accompanied Marian. Without a word, Marian took a place with the teachers by the instrument and joined in the hymn. The sweet childish chorus rose again, though scores of little eyes were fixed on Ralph, many recognizing him as the stranger who had played with them at the Bungalow. The thrill of the music was pleasant to Ralph. It was the first agreeable sensation he had felt in Smeltham. When the song was finished Marian introduced Ralph and the teachers to one another, and afterwards asked Winter to play for the children, which he did willingly. He recalled all the childish airs he could think of, and when Marian called for the chorus the children joined in with spirit and carried Ralph along from one song to another.

"Perhaps I'm stopping the studies," said Ralph.

"No, no!" answered Marian, eagerly. "Don't stop, play on," and for nearly an hour Ralph led the school. When he ceased, he felt a glow of satisfaction, such as had not been his for many years. It was strange and very pleasant.

Marian revealed the pride and pleasure she took in the school by the quiet diligence which she exercised in showing it to Ralph, and by her delight, expressed in a half-restrained smile, at his interest or admiration. She took him to the different classes, showed him the work the scholars were doing, and to the kindergarten where Marian herself was the principal teacher. Outside, in the rear of the main building, was a long, low workshop, which had been converted into a rough refectory, furnished with tressel tables and wooden benches.

"Do you feed your children too?" asked Ralph, as he was conducted through the room.

"Yes. Many parents wouldn't see that their children attended regularly if knowledge was the only gift we had for them."

"I understand," said Ralph.

Marian then led her visitor to the floor above, by way of the exterior steps already spoken of, which were in reality little more than a substantial ladder. Here Ralph was surprised to find a more elaborate establishment than the school below. The greater part of the floor was arranged as a meeting hall—a small stage, equipped for lectures or concerts, with a reading-desk, a huge blackboard and a piano—and beyond, circle after circle of benches. Off from the hall was a reading-room quite comfortably furnished, the walls of which were lined with books all in rough canvas covers.

"And this?" asked Ralph, looking around.

"These are the Tubal Club Rooms."

"And do you manage this too?"

"Oh, no. The men, most of them the parents of the children downstairs, manage this themselves. Indeed, they manage the school as well—that is, there is a committee, four of the men, the Dean, Mr. Kneesman, and—myself."

"Why the men? Isn't the Dean and yourself and my friend, the Rev. Mr. Kneesman enough?"

"No, management is education; besides, the men know their own lives and necessities better than we do. If it wasn't for their aid we would do a great many foolish things that would thwart success. I don't think you have any idea, Mr. Winter, of how much rough wisdom and hard common sense the working people possess. Besides, they know their own wants so much better than any one else, and for practical results it doesn't do to build above the heads of people. Does it?"

"Miss Wisdom," exclaimed Ralph, laughing.

"But, am I not right?"

"Of course you are right," said Ralph. "But what are these I see?" continued he, glancing at the book shelves. "Karl Marx, Henry George, Toynbee, Bellamy, Webb, the Fabian Essays, Economics of State Socialism, Death and Disease Behind the Counter, Labor Movement in America,

Tom Mann, England for All, George Howell. Why, Miss Pilgrim, is this a revolutionary club?"

"No. It's a Workingmen's Club. Why?"

"Do you think this literature of disaffection is the proper sort of reading for working people? Have you gone through it yourself?"

"No," said Marian, quietly. "I have never read any of it."

"If you had," said Ralph, "I am sure you'd banish it all."

"I don't think so, Mr. Winter."

"What, not if you disagreed with its teachings, which I am sure you would?"

"No, indeed; the workingman must develop his life from his present position; must work out his own ideas, strive for his own ideals, work on to wisdom from his own point of view. His ideas and methods may not be yours, Mr. Winter, but they are the only ideas and methods that can be real and vital to him. He cannot possess the drawing-room view of life, nor strive for drawing-room ideals by drawing-room methods."

"But suppose he is on the wrong track, as we say in America."

"He is not, Mr. Winter, despite mistakes and shortcomings. God may forsake the individual, but never the people. In the end, He will bring good out of the effort of these people for a fuller life. Besides," she added, "I have only a voice in the management here."

"But you supply the funds?"

"The Committee," said Marian, hesitating, "find what is needed."

Ralph was standing in front of the girl. He took both of her hands in his. The words were wrung from him:

"You noble girl," he cried.

It was the uplifting of a strange, worldly voice in the sanctuary. Marian blushed deeply. For a moment she bowed her head in a sort of shame. Her hands still remained in Ralph's. When she lifted her face to his it was marked with something like pain, and big tears were in her eyes. Without a word, she hurried down to the school-room. The Tempter had spoken to her, the Evil One that stands so close to the Good, so ready to whisper and desecrate.

Try as Marian might to silence Ralph's words, they would not be silenced They sang to her with a siren sweetness. They thrilled her very being with pleasure; a deadly pleasure she felt. It was as though the nun had seen her face reflected in the Virgin's eyes and read there that she was fair. What was Eve's temptation to this one threatening the peace of Innocence of the Garden of Eden. As to Ralph, though the words were uttered quite without premeditation, reflection approved of them thoroughly. She must be pleased, he thought. Besides, they are true. He felt he had advanced one step nearer to Marian.

His admiration for the girl, however, acted reflectively. The light of her goodness revealed to himself critically his own narrow life. The Teacher was busy with him. The neophyte was getting to his knees. But was the Teacher God or Love? Ralph himself could not tell. The lesson was accompanied by a gentle feeling of elation. Ralph perceived what he regarded as the goodness of his own nature. It was like witnessing a mild apotheosis of one's self. "No common nature," he thought, "would be stirred by the admirable as I am."

Whoever was the teacher, chance visited the Tubal schools that afternoon and pressed the lesson closer home to Winter. Ralph spent the remainder of the morning in the Library, and then dined with Marian and the children. By this time his interest had pretty completely traversed Marian's little establishment, the novelty was exhausted, and he felt a sneaking desire to get away from the place. He wandered into the town through the finer business streets, and when tired of walking hired a cab to drive him about. In this way he obtained in a few hours a wide glance of Smeltham, and though the town, even at its best, lacked charm or beauty of any sort as completely as the machine-made goods it turned out in such vast quantities, it impressed Ralph, for it was after all a great living thing. The strong pulse of modern life beat in its activity, and its bustle and manifold noises whispered of multitudinous desires which had traveled by devious ways from the four quarters of the globe, and were the genii which had created the town,

and day after day crept into the machinery and the very muscles of the great army of toilers, and kept all in motion. There was a grim kind of poetry in the thought for Ralph.

If modern commerce forges the chain of a dirty and prosy slavery for millions of mankind, is not the same chain also binding the world together in a brotherhood that year by year becomes closer? Who knows but that some day the iron fetters will be transmuted to gold? Turk, Russian, Australian, Indian, Chinaman, were all in a way at work with the mechanic at the Smeltham factories, and beyond the doors of the noisy buildings the imagination could see Rhenish vineyards, American cornfields, Canadian forests, strange tropical lands, busy cities under the Western sun, minarets of the Morning Land, sleeping little villages and wide seas. Ralph's unpleasant impressions of the morning were crowded from his mind by the sight of this larger vision. "Patience and Faith, Faith and Patience," an inner voice cried. "All will yet be well. God who is Love, and Beauty has not forsaken the World. But do thou *thy* part in Patience and with Faith."

These thoughts were at work with Ralph when he returned to the schools. The children had departed, and Marian was awaiting him.

"I didn't mean to be gone so long," he said. "I have kept you waiting?"

"No," replied Marian, vacantly. She hesitated before saying anything more. "Mr. Winter," she recommenced, diffidently, "I have just received—a telegram—from—Mr.—Professor Dunsey. He has disappointed me."

"How so? What has he done?"

"It is what he has not done." Marian lifted her eyes to Ralph's from the paper she held in her hand. An experienced coquette could not have acted better. "Mr. Winter," she said, eagerly, "I want you to do me a great favor. Will you?"

"Indeed I will, with pleasure."

"Well, Professor Dunsey promised to lecture on Iron to the club to-night. Once a month, you know, we have a lecture. This is the first time I have undertaken to make the arrangements, and here's the result: Professor Dunsey

telegraphs that his wife has been taken very sick, and he cannot possibly leave London."

Pause.

"Well," asked Ralph, after a minute, "what can I do with the dilemma? Go to London and drag the Professor to his engagement by the hair of his learned head—if he has any?"

"No," said Marian. "It is too late for that." Then she continued, diffidently: "I want you to take the Professor's place."

"Lecture on Iron! Me?" cried Ralph, in amazement. "Why, my dear Miss Pilgrim, I couldn't tell iron from steel to save my soul from everlasting perdition. A lecture from me would be very funny. Gentlemen and—will there be any ladies? iron is a very useful metal of a black or grayish color, found, if my information is correct, in the bowels of the earth, in a great many places. It is made into pigs and sows, too, I think. It is...."

"No, no," said Marian, "I want you to take the Professor's place, not his subject."

"Oh, and?" asked Ralph.

"And," said Marian, coaxingly, "tell our people something about Music. You will be at home there."

"Yes, but my house isn't in order for company."

Marian felt she was gaining her point.

"But the visit is an informal one," she said, laughing. "Will you come upstairs, Mr. Winter. Come along, Miss Spinney." When the trio entered the hall Marian said, "Sit down at the piano, Mr. Winter."

Ralph did as he was bidden. "Now?" he said, striking a chord.

"Your audience is before you, Professor Winter. We want you to tell us what sound is—what a musical sound is—how it differs from an unmusical sound. What is melody? what is harmony? We want you to illustrate the matters for us. We...."

"Hold! Hold!" cried Ralph. "One thing at a time, pray."

"Well, then, what is sound? What is the difference between a high or treble sound and a low or bass sound?

Remember, Professor, we are very ignorant, and would take it as a favor if you will give us the simplest explanation you possibly can. No big words."

Step by step, in this manner, Marian led Ralph along from vibrations of the air, the length of waves and strings, to the nature of musical concords and discords, the formation of chords, and the rudiments of harmony. At every point possible Marian cried: "Show us on the piano, Professor," and she got Ralph to remove the front of the piano, so that "the audience" might see. When Ralph had finished, she gravely proposed a vote of thanks for the Professor and three cheers.

"There, Mr. Winter," she said; "you see how much buried treasure you have. You will repeat that lecture for me to-night, won't you?" She put her hand on Ralph's arm. The appeal was too strong to be refused.

"I will do anything for you," said Ralph, so fervidly that Marian blushed. "But," continued Ralph, who would have given a great deal to be free from the task, "it will be no lecture, I can do no more than chat as I did with you, and I'm not sure I can do that before a crowd."

"Nothing could be better than a chat. It's the very thing."

"Will you be present to help me along with a question or suggestion in case I come to a stop anywhere?"

"To be sure. I will be with you, and so will Miss Spinney and Mr. Kneesman, and the Dean's wife ..."

"Pray stop—don't make me afraid of my audience before I face it."

The "personages" Marian had named and a few others were present when the lecture began, with one hundred and fifty workingmen of the neighborhood and their families. The Rev. Kneesman introduced Winter to his audience, alluding to him as "a great musician, really one of the greatest I have ever heard." The compliment made Ralph smile, but nevertheless it was pleasant and, of course, it raised the expectations of those present. The rows of inquisitive faces uplifted to Winter's disconcerted him at first, but little by little, as he began to speak, the inquisitive look gave place to one of interest. The illustrations on the piano

were particularly attractive, and as many of the audience seated in the rear of the hall were too distant to see the keyboard of the instrument they crowded on to the stage. Ralph soon became at home with his hearers, and then all hesitation, either of ideas or speech, vanished. "Here, Sir," he said to a tall, bony, long-armed workman who had edged up to the side of the piano, "please strike these three notes—so. You notice they are in harmony." The lankey fellow was thrown into awkward confusion by the request and endeavored to sidle away.

"Go it, Bill," cried a voice in the crowd. "He is a musicianer, mister. He's preached 'armony to us many er time."

A roar of laughter followed, amid which Ralph took hold of Bill's reluctant big, coarse fingers and tried to get them into the position to strike the chord.

When they did touch the keys there were at least six notes beneath them. Louder laughter followed the performance and "Bill" fled the stage.

"See if he can strike three five pun notes at once, mister," cried a voice.

This sally brought down the house again.

At the close of the lecture, the entire audience gathered around Winter and they kept him playing until Kneesman declared it was time for the ladies to be getting home. Then three cheers were given for Ralph, and right lusty cheers they were too, and everybody smiling voted that the evening was the "pleasantest yet."

On the way home, Marian gratefully thanked Ralph. She was delighted with his success. Her praise rang in his ears. "You don't know, Mr. Winter, how much you have been keeping to yourself."

"Such as it is, it has taken you to find it and bring any of it to the surface."

"No, Mr. Winter, you are finding yourself."

Marian gave him a warm good-night. Her hand lingered in his.

One step more, thought Ralph, when he was alone. You are an angel, my Marian, and I love you. No wonder I have been a discontented cuss. She is right, I've lived a selfish life.

The old Hildesheim dreams faded away. The future would be with Marian.

I will help her in the schools, said he; and as Ralph constructed project upon project, he became more and more pleased with himself in the role of teacher and philanthropist.

To be continued.



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JANUARY-MARCH, 1893.

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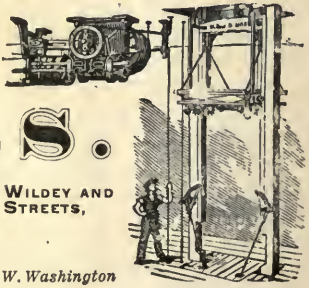
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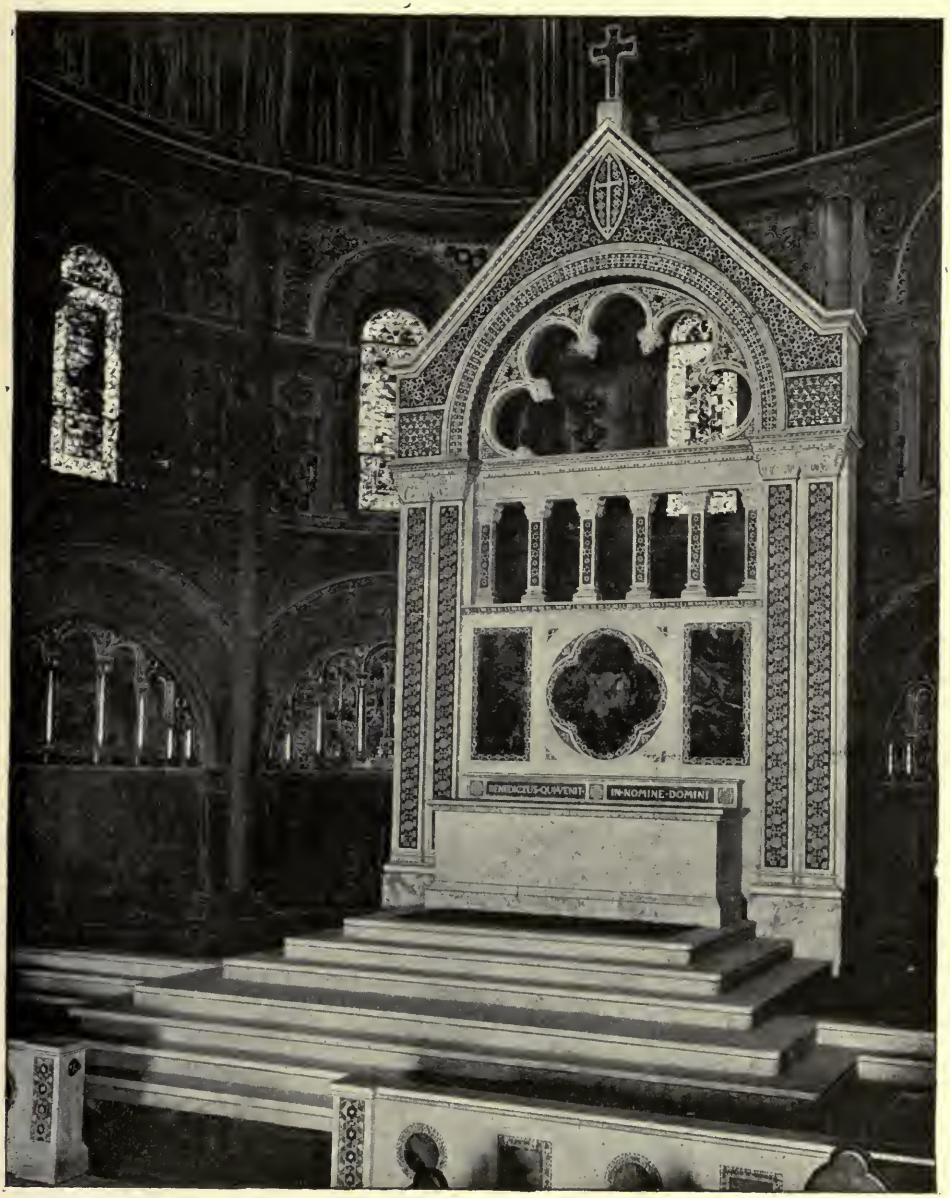
Mosaics in

St. Agnes' Chapel.

West Ninety-second Street, New York City.



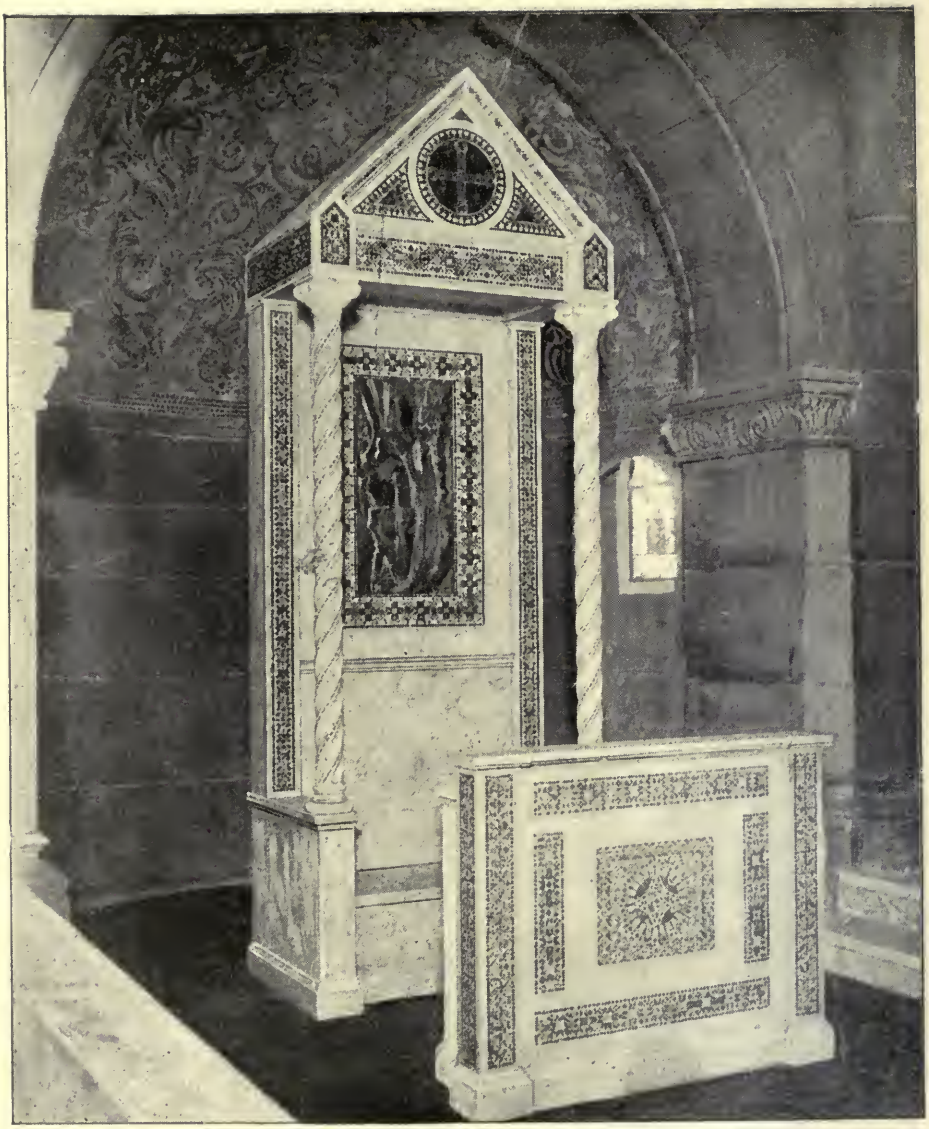
Wm. A. Potter, Architect. NAVE AND CHANCEL.



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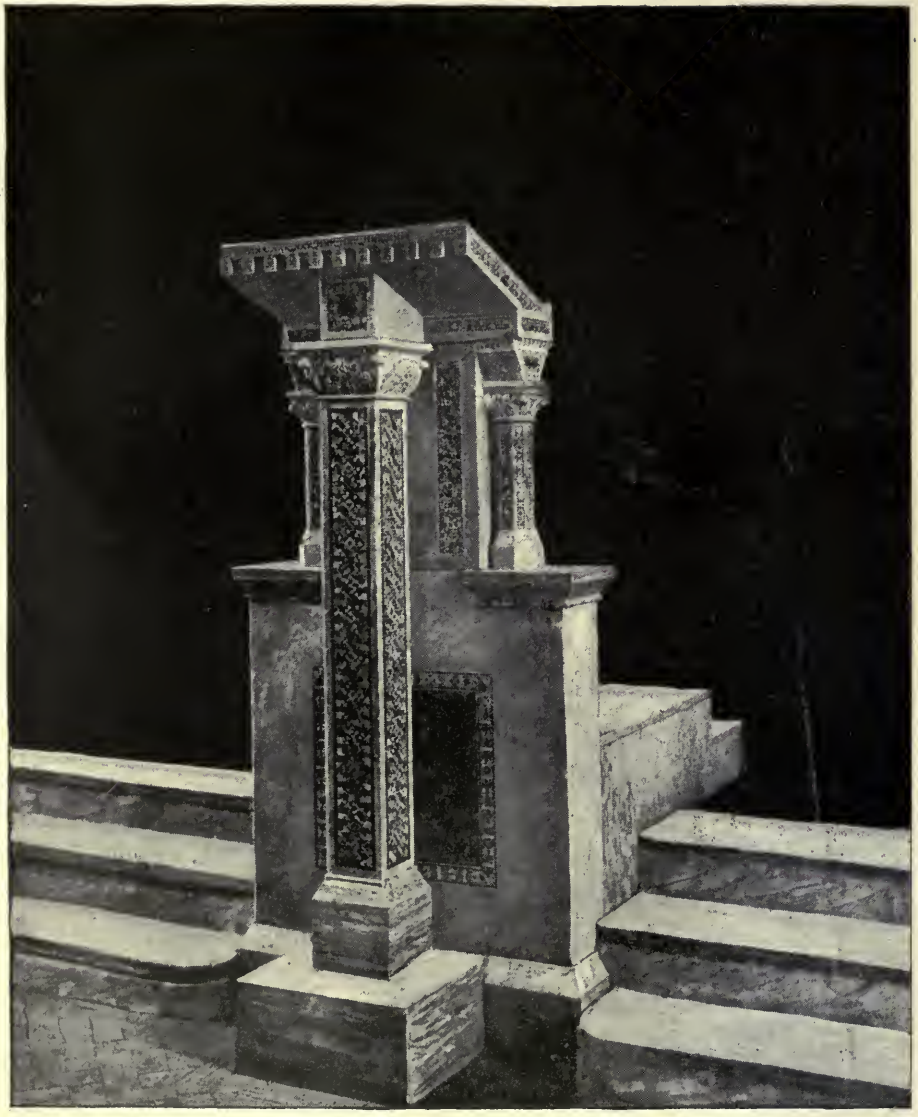
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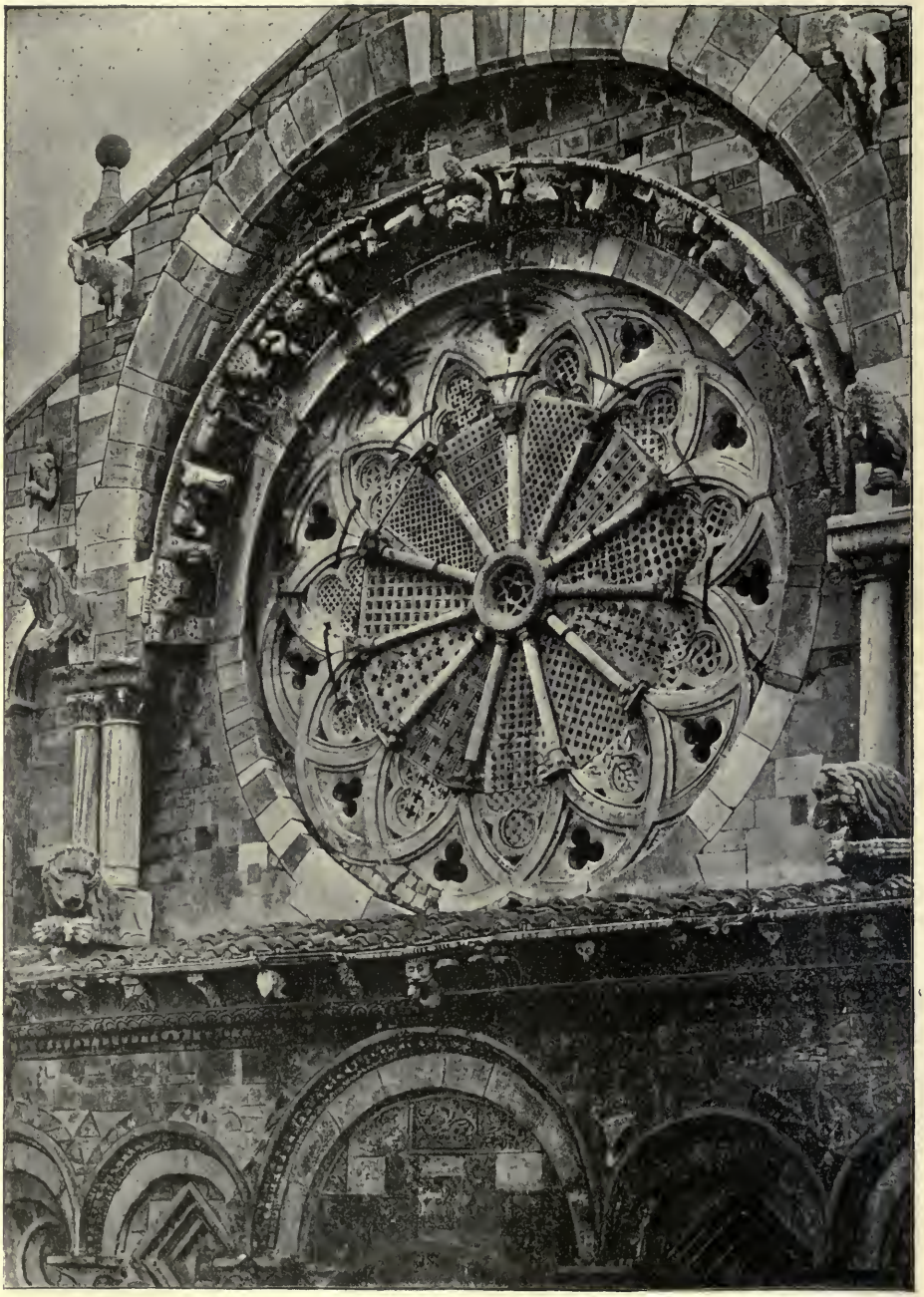




THE PULPIT AND SEDILIA.

Designed by
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Perforated Stone Window (originally glazed with colored glass).
Cathedral, Troja, Italy.

The
Architectural Record.

VOL. II. JANUARY-MARCH, 1893. No. 3.

"A SEA OF GLASS."

IN the latter part of the seventeenth century there lived in France a worker in glass by the name of Blancourt, who, fearing that the art of making colored glass might be lost, as many of the processes were trade secrets, secrets handed down by word of mouth from one generation of artisans to another, wrote a book upon the subject, now one of the rarest books known to the bibliopole. In the first part of this book occurs the following passage: "The power of Nature is limited in all her effects, and men alone can augment and enlarge by Art the virtues and powers which she has produced." The truth of this observation is most fully illustrated in the origin, development and use of glass, a truth I hope to make clear to all my readers in the following study upon the picture windows of the past, more particularly those of the Middle Ages, which were the outcome of the faith of the people, and so numerous were they that they are fitly described by the words of Holy Writ: "*And before the Throne there was a sea of glass like unto crystal.*"*

The English substantive *glass* is derived from the Anglo-Saxon verb *glisnian:* to shine, and is used to name a well-known vitrified substance, which for the purpose of study may be divided into two great classes, namely, natural, and artificial.

1.—Natural glass is found in various parts of the world, generally in the vicinity of volcanos. In the island of Lapari there is a cavern of which the side walls are composed entirely of this material; it resembles the *scoria* or slag of metal furnaces, varies in color, is often filled with impurities, and is seldom transparent. It was largely used in the arts by the nations of antiquity, and also by the ancient Mexicans and Peruvians; it was called by the Romans *obsidian,* a name probably formed from a Greek word meaning "seeing images in," a name given to this material because the black variety was used by the Egyptians, Greeks and Romans in the making of mirrors.

2.—Artificial glass is a transparent, semi-transparent or opaque substance, varying in color, made by fusing a silica with an alkali—sand is the commercial representative of the silica, and soda of the alkali, while the color is produced by mingling metal oxides with the sand.

The origin of artificial glass is unknown, and all the effects of modern times to discover it have been fruitless; it has passed from the memory of man. It is true that Pliny and other ancient authors give us a legendary account of the discovery of artificial glass which is quaintly epitomized in an old work, on the art of glass-making, printed in 1699, as follows: "We are indebted to Chance for the first invention of glass, which was made on the banks of the River *Belus* in *Syria,* where certain merchants being driven ashore in a storm were obliged for some time to stay and make fires and to dress their provisions; the place abounding with a certain herb called *Kali,* which by the great fires they made, being reduced to ashes full of salt, and joined with

* Rev. IV., 6.

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sand and stones proper for making glass, which are natural and plenty thereabouts, run down into a sort of melted glass; which showed them not only the manner of making glass, but also crystal, and several other fine things which had not been found out without the invention of glass."

Such an accidental discovery may have happened, if not just as related above, yet it is possible that "by some fortuitous liquefaction was mankind taught to procure a body at once in a high degree solid and transparent, which might admit the light of the sun and exclude the violence of the wind, which might extend the sight of the philosopher to new ranges of existence, and charm him at one time with the unbounded extent of the material creation, and at another with the endless subordination of animal life, and, what is yet of more importance, might supply the decay of nature and succor old age with subsidiary sight. Thus was the first artificer of glass employed, though without his own knowledge or expectation. He was facilitating and prolonging the enjoyment of light, enlarging the avenues of science, and conferring the highest and most lasting pleasures; he was enabling the student to contemplate nature, and the beauty to behold herself."

Whatever may have been the origin of artificial glass, it is undeniable that the art was discovered at a very early period; in fact, we have a specimen of dated glass now in the British Museum which was made B. C. 3064; it is an amulet in the form of a lion's head, made of opaque blue glass, and upon the under side there are hieroglyphics which give us the above date. In addition to this evidence, the process of glass blowing is depicted in the paintings on the walls of the rock-built tomb of Beni-Hassan (2851 B. C.), and in the sculptures upon the more ancient tomb (B. C. 3900) of Tih in the necropolis of Sakkara at Memphis, and glass bottles containing red wine are represented in Egyptian paintings executed 4,000 years ago.

As the most ancient examples of glass that we have are undoubtedly of Egyptian manufacture, and moreover the history of glass-making in the different countries of the classic world seem to point toward Egypt as the source of the art, a country in which there is still to be seen, at the side of many of the Natron lakes, the ruins of glass factories of the highest antiquity, we are safe in concluding that Egypt was the mother of the art of glass-making, and that thence the art was transmitted to all parts of the known world. Among the Egyptians themselves glass was employed in every imaginable way, except for windows; it appeared everywhere: upon the walls of their buildings, upon the dresses of the people, upon many articles which helped to furnish tombs and temples, palaces and private houses. The mummies were adorned with necklaces, flowers, beads and eyes of glass; the living decorated their garments and persons with glass ornaments, kept their wine in glass bottles, ate their food from glass plates, measured the rise and fall of their sacred river with nilometers of glass, and made statues of their gods in glass; in fact they blew, cast and cut glass into thousands of objects of daily use in their unique civilization.

The Phoenicians, the Assyrians, the Greeks, the Etruscans, the Israelites, and the Romans received originally their glass from the Egyptians; millions of glass objects, ornaments, amulets, etc., were exported from Egypt to these nations, and their fragments are found even to-day in countless numbers among the ruins, in the tombs, and beneath the soil of these countries.

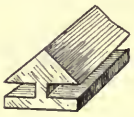
As for the Romans, among whom glass was introduced in the year B. C. 536, they were not only importers and consumers of Egyptian glass, but ultimately became makers; it was the only way they could supply the demand, for they employed a prodigious quantity, far more than is now in use. Where we employ in domestic life earthenware they used glass; they made their decorative vessels, their wall and floor mosaics, their chessmen and dice, their perfume and toilette bottles, necklaces and ornaments, cameos and gems, toys, nick-nacks and water clocks, of glass, and Roman ladies even used glass balls to keep their hands cool, changing the balls as they became

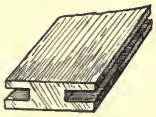
heated. Propertius (B. C. 57) describes Cynthia demanding glass cooling balls for her hands, and not long ago an alabaster urn was found in Rome containing sixty of these balls.

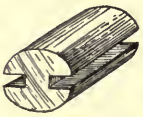
Roman glass, like Egyptian, was made in all degrees of transparency and translucency, from the purest of crystal to the opacity of black obsidian; in range of color it embraced every shade of blue, green, red, orange, yellow, lavender, white, and many other colors; and much of it was as brilliant as polished gems. The Romans were the first to use it in windows. The panes they employed were usually not more than seven to ten inches square, and made of a greenish glass; but after the advent of Christianity glass windows became larger and more common, Constantine giving an impetus to the movement by glazing the windows of the basilica of S. Paul's beyond the walls of Rome with sheets of colored glass, which Prudentius describes as varied in color and as brilliant as a field of flowers in the Spring.

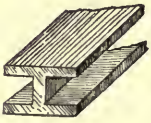
In the beginning, the church builders filled their windows with slabs of marble or stone or stucco, pierced here and there in such a way as to form a pattern, glazing the perforations with colored glass. The windows of the church of S. Sophia, rebuilt by Justinian at Constantinople in year A. D. 565, were made in this way, as well as most of the windows of the churches of the first five centuries of Christianity, both in the East and the West. This usage continued in vogue in the East almost to our own time, more especially in Egypt among the Copts, where examples of this work may be seen to-day in their churches and monasteries. In Italy there are a number of churches where perforated slabs (windows) still exist, but without the glass, which in the course of ages has disappeared. When the world recovered from the paralysis of all the arts, brought upon them by the iconoclastic madness of the eighth century, the architects and artists of the time turned their attention to improving the artistic beauty of church windows by lessening the amount of tracery and by the introduction of figures. This departure was probably inaugurated by the artists of the Germano-Christian school, who endeavored to break away, more particularly during the age of Charlemagne, from the methods of the Roman-Byzantine school of art, and would have undoubtedly produced in the end beautiful picture windows, if the development had not been arrested by the popular belief that the world was approaching its end, that the year 1000 would see the dreaded catastrophe—a nightmare from which the fine arts only began to awaken in the middle of the eleventh century.

Then it was that gradually the beauty and inherent quality of glass as a transmitter of light and as a decorative material was brought into play through the requirements of Gothic architecture, an architecture peculiarly marked by large window openings. It called for a filling strong enough to keep out the weather, yet transparent enough to admit the light; on the other hand, as in this form of architecture the wall spaces were necessarily small, the windows were the only places where the decorator could display his art in as far as it depended upon color.









But as glass was only to be had in small pieces the glazier was compelled, in order to fill the window openings, to make his lights a mosaic, that is, a combination of various-sized pieces of glass of various colors worked to a given design by placing them in juxtaposition, and retaining them in place by some other materials, and the best material for the purpose was found to be lead—strips of lead having lateral grooves for the reception of the edge of the glass.

As I said before, Gothic architecture, in making the window opening so vast as the great window at Tintern Abbey, which measured ninety feet in height



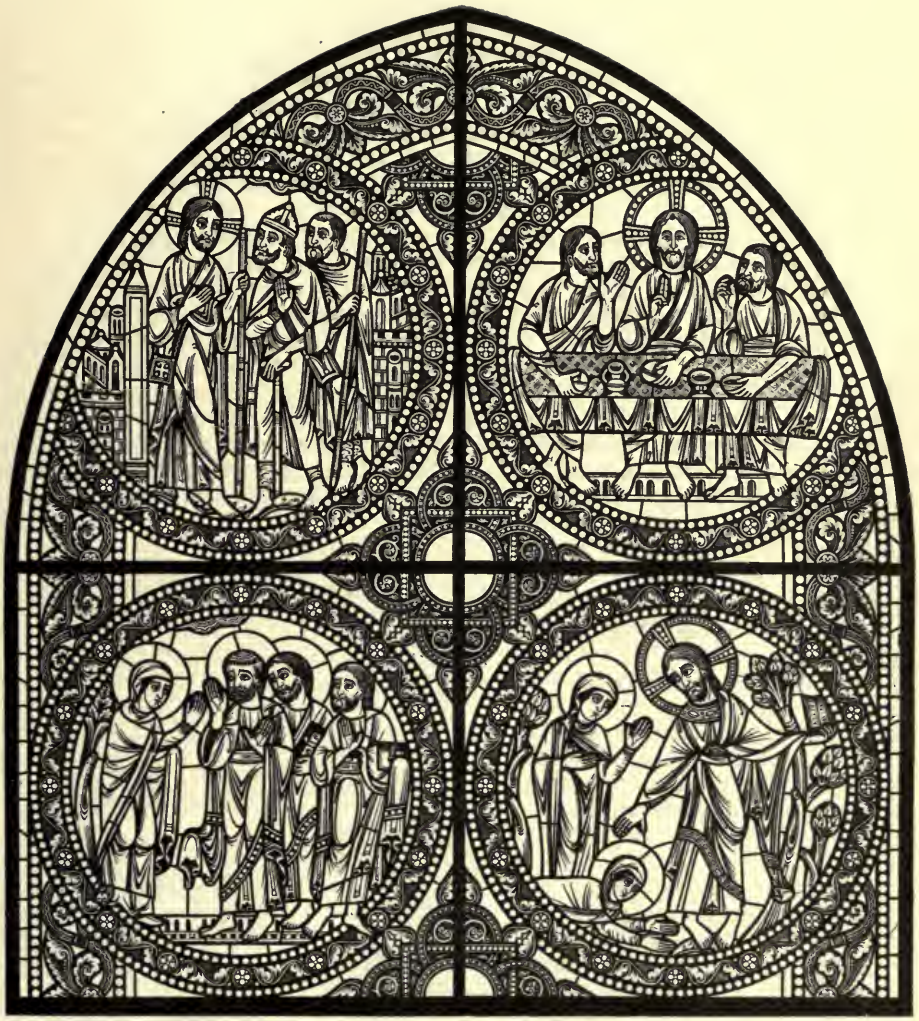
Marriage in Cana of Galilee.—An example of late XIIIth century leading (French).

and twenty in breadth, left very little wall space to decorate in color, so the decorator was compelled to turn to the windows as a field in which to display his art and express, as he was required by the builders, the doctrines of the Church under forms of beauty, for these picture windows were looked upon as the Bible of the poor and the uninstructed. So successful was he that at last the church windows blazed

"With forms of saints and holy men who died,
Here martyred and hereafter glorified;
And the great Rose upon its leaves displayed
Christ's triumph, and the angelic roundelays.
With splendor upon splendor multiplied."

In many cases the entire Bible history of man from Adam down to the Apostles was portrayed, if not as fully, as on the garden walls of the monastery of Koengsael in Bohemia, where the whole Bible, from Genesis to Revelation, was engraved, the letters increasing in proportion to their height from the ground, so that the whole could be easily read by the passing spectator; nevertheless, in the windows were depicted all of the *great events*, which were made plain by these glass pictures to the meanest understanding. Even the ignorant could read the lessons they inculcated. But all this was brought about gradually, step by step; it was not until the building of S. Denis at Paris, by the Abbot Suger, in the middle of the twelfth century, that picture windows became an almost necessary constituent of every ecclesiastical edifice.

Suger, before building the abbey church of S. Denis, remembering the words of Solomon to Hiram: "*Send me a skillful man that knoweth haw to work in gold and silver, in brass and in iron, in purple, in scarlet and in blue, and that hath skill in carving*," so that



IN CHARTRES CATHEDRAL.

The upper part of a medallion window.—XIIth century.

"*I may build a house to the name of the Lord my God—for the continual setting forth of bread and for the holocausts,*" made inquiries in every country, and gathered together the best artists of Europe out of every nation to assist him in the building and decoration of the church, the most stately edifice of the age; the germ from whence sprung much of the best ecclesiastical art of the next century.

Among the artists he called to his aid were those skilled in the art of making colored glass windows, more particularly those who were adepts in the new art of painting on glass with fusible metallic colors, an art discovered shortly before at Limoges. The painted windows in use before this discovery were not durable. The artists employed ordinary transparent pigments, painted upon clear glass and protected the same by placing over it another piece of glass which was held in place by the means of leads. This insured preservation for a time.

Suger saw the value of the new method of incorporating with or attaching metallic colors to the glass itself, and caused the windows for his church to be made in this way. I do not mean to say he was the first to use the new invention, as a few years before he commenced to build, the church of S. Maurice at Angers had been glazed with vitrified painted windows, but he was one of the first to promote its use.

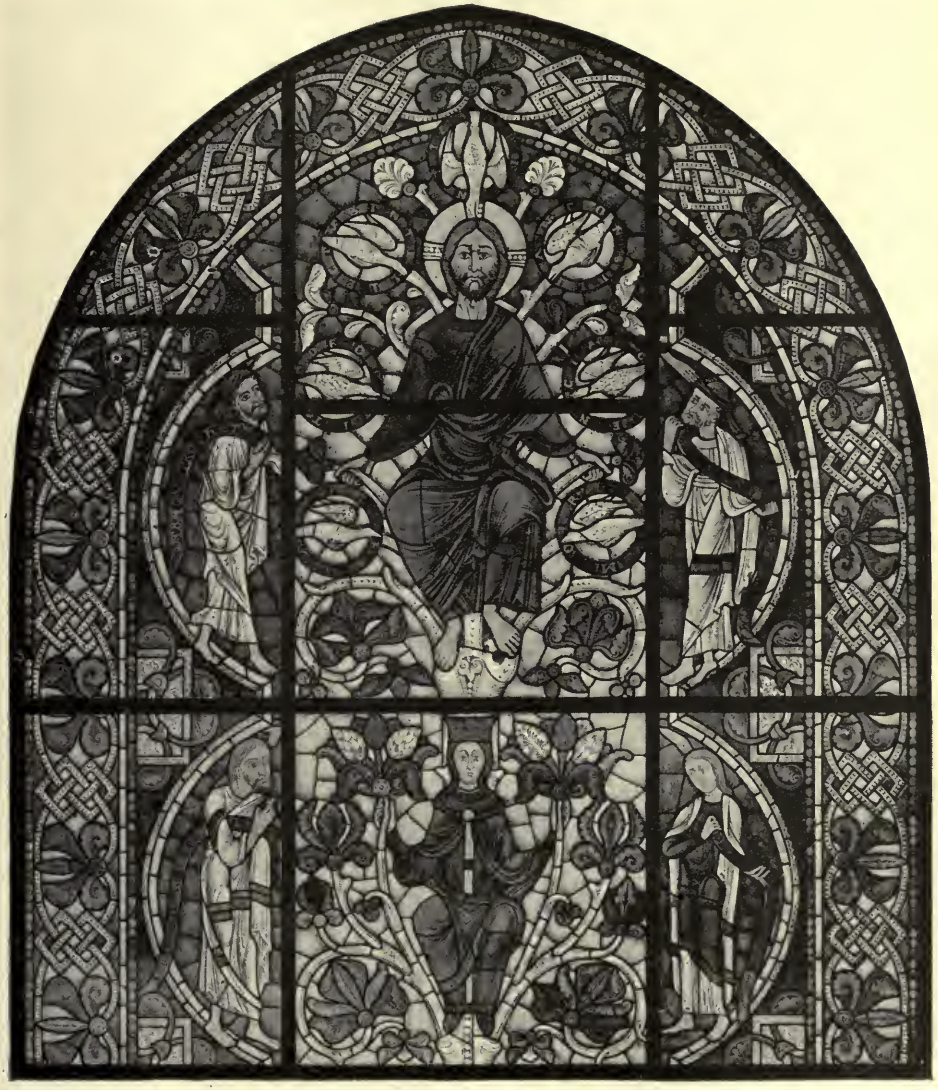
The windows of S. Denis are said to have been far superior to those of S. Maurice in execution, harmony, good taste, general arrangement, design and color treatment; the figure subjects were painted upon small pieces of glass, imbedded in a very wide ornamental border, a large number of these medallions entering into the composition of a single window. They were all related to one another through their color key, through their depicting various incidents in the same history, or some one point in a theological proposition which found its complete expression in the whole.

This form of window, peculiarly adapted to a single light, continued to be employed from the middle of the twelfth century until the introduction of tracery, and in some parts of France long after the single lancet had given way to the mullioned window.

Contemporaneous with, and following the introduction of, medallion windows there were two other kinds: the canopy and the Jesse windows. In the *first* named there was a representation of one or two figures, executed in rich colors on a colored or white ground, occupying the whole window, within borders and under a low crowned, rude and simple canopy, out of proportion to the figure or figures it covered; the *second* variety carried a picture of the Tree of Jesse, a pictorial genealogy of the Redeemer, consisting of a tree or vine springing from the recumbent form of Jesse, lying asleep at the foot of the window, the branches forming a series



An example of flesh painting where glass of various tones was used for the groundwork. XIIth century.



A JESSE WINDOW.—EARLY XIIITH CENTURY.—FRENCH.

In Chartres Cathedral. (Upper part.)



A JESSE WINDOW.—EARLY XIIITH CENTURY.—FRENCH.

In Chartres Cathedral. (Middle part.)



A JESSE WINDOW.—EARLY XIIITH CENTURY.—FRENCH.

In Chartres Cathedral. (Lower part.)

of panels or medallions, one above the other, in which were represented the king and patriarchs of the royal house of the Lion of the Tribe of Juda.

The artists employed in making the windows for the Abbot Suger used very little paint, but followed a mosaic motif as far as they could, the glass of the time materially helping them to that end, as it was unequal in color and transparency, irregular in surface and texture, which made it more adaptable to mosaic effects than the more perfectly-made glass of a later date. At the same time these so-called "defects" increased the richness and gave a gemlike color to the glass. They used paint only in the flesh in outlining the figures



An example of washed shading.—English. Early XIVth century.



An example of outlining flesh painting.—Early XIIIth century.—French.

and ornaments, and where they needed a line it was made of strong brown and the shading was done by cross-hatching or by a thin wash of brown. When they wished to deepen the shadow they did not paint over the first application, but on the opposite side of the glass. They made their diaper patterns by smearing the surface of the glass with color and scraping the design through the paint to the glass. The faces, hands and naked parts of the figures were made with flesh-colored glass, excepting the eyes, which were often painted on white and leaded into the face; the beard and hair were made of

small pieces of colored glass; the figures were badly proportioned; the draperies were worked into small folds, stiff and scanty; the backgrounds were either deep blue or red, occasionally diapered. Each individual color in these windows was made with a separate piece of glass, and as the pieces were very small there was consequently a large amount of lead work, but as the glazier worked the leads into the outlines of the design their presence was scarcely perceptible.

In studying the painted windows of the twelfth century the student is forced to admire the ingenious combination of color, the rich rug-like effects and brilliancy of the glass, although much of the beauty is marred by the grotesque, stiffly-drawn figures inclosed in long, sheath-like vestments of many up and down folds. It was reserved for the thirteenth and fourteenth centuries to see the full unfolding of the possibilities and beauties of color glass; this was the period when the face of Europe was covered with buildings of great magnitude and magnificence, the monumental expressions of the faith, the devotion of the people, the munificence of kings and nobles.

In the almost countless cathedrals, churches, abbeys, chapels, colleges, hospitals and monasteries that were built during these two centuries every form of art found an almost boundless field in which to display its particular form of beauty; the architects, the sculptors, the metal workers, the painters, the glaziers of these buildings worked in unison to a common end, one art helping another. For example, as the art of making picture windows in colored glass attained perfection "the windows gradually expanded to receive it in the contemporary architecture until the walls of the church almost disappeared, the buttress alone holding up the groined roof."

What were these windows of the thirteenth and fourteenth centuries like? Luckily for the history of art, in spite of the ravages of time, the fanatical devastations of the sixteenth century and the destruction wrought by the revolutionists of the last, there are still remaining in France a number of windows containing glass made during these two centuries.

Among the most beautiful ones are the exquisite jewel-like windows of the cathedral of Chartres, a hundred and forty-three in number, and containing no less than one thousand three hundred and fifty subjects, with over three thousand figures; there are also some magnificent windows at Rheims, Bourges, Tours, Poitiers and Angers; but taking these altogether they form only a small proportion of the incredible number that once existed, for it is said, on good authority, that in the sixteenth century there were thirty thousand churches, fifteen hundred abbeys, eighteen thousand five hundred chapels and two thousand eight hundred priories in France, and that every one of these was adorned with windows of colored glass.

The first thing the student remarks in studying the windows of the thirteenth century is that the colors are more brilliant, more artistically combined and skillfully blended than in those of the preceding century; and that the artist, the *master glazier*, never lost sight of the two fundamental principles that should always govern the use of colored glass in windows: 1st, that it should transmit light; 2d, that it is only an auxiliary of architecture, a decorative adjunct. The figures, although generally lacking in expression, are better in drawing than those of the preceding century, than those in the Abby of S. Denis; the faces oval in form are more delicately treated, often refined and vigorous, the eyes having a somewhat natural expression, the hair and beard produced by varying the thickness of the lines; while the draperies are broader in treatment, lighter and more natural in their fo[illegible] the compositions are simple and not overcrowded; the animals, trees and architectural details are still conventional, although the ornaments, taking their motives from the maple, oak, ivy and other leaves, are more natural and show greater precision in the drawing. The windows as a whole exhibit in every detail great advance in the art of representing natural objects, a more exact



EZEKIEL CARRYING ST. JOHN (UPPER HALF).—CHARTRES CATHEDRAL.

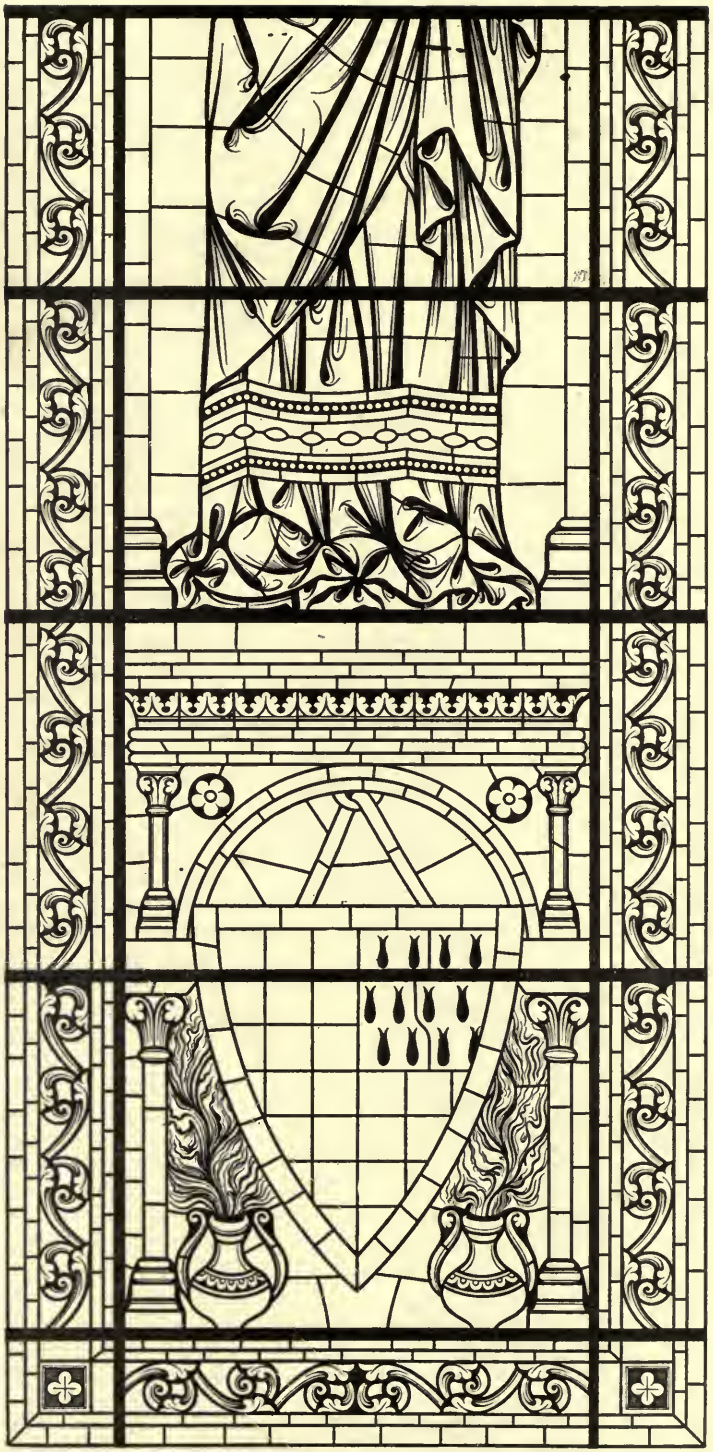
Allegorical window.—Late XIIth century.



EZEKIEL CARRYING ST. JOHN (LOWER HALF).—CHARTRES CATHEDRAL.
Allegorical window.—Late XIIth century.



THE BLESSED VIRGIN AND THE CHILD JESUS (UPPER HALF).—CHARTRES CATHEDRAL.
Late XIIth century.



THE BLESSED VIRGIN AND THE CHILD JESUS (LOWER HALF).—CHARTRES CATHEDRAL.

Late XIIth century.

imitation of nature, and a great appreciation of the harmony of color.

In the choice of subjects the glass painter of the thirteenth century was guided, or more truly limited, by the paramount object of all ecclesiastical decoration of the Middle Ages, viz.: the instruction of the illiterate and the promotion of piety among the people, therefore the windows were filled with representations of scenes from Biblical history, the lives of the saints and symbolic portrayals of the dogmas of the Church—"pictures where science on one hand and doctrine on the other were personified." They were in fact sermons "which reached the heart through the eyes instead of entering at the ears." But this choice of subjects was not made at random, it fell under the same rule that guided the encyclopædias of the time in their unparalleled classification of the universe: commencing with God, the creation of angelic beings, nature, science, ethics, and history. The windows were a poem in glass, "the first canto, reflecting the image of God, as the Creator, the father, and the giver of all good gifts; the second, nature, organic and inorganic; the third, science; the fourth, the moral sense; the fifth, the history of man; and lastly, the entire world." Where there were not enough windows in a church to carry out the complete scheme, some one portion was selected. Running through all the picture windows of the Ages of Faith there was a symbolism of great beauty, unsurpassed in its subtle and lucid exposition of truth by any other system ever devised by the genius of man.



An example of English flesh painting of the XIVth century.

Before passing to the history of the glass of the following centuries it would be well to examine into the way the windows, now under consideration, were made. Happily we have an authority: Theophilus, the monk, most trustworthy in every respect, as he was a contemporary, and has fully described the process in his *Diversarum Artium Schedula*, which may be epitomized as follows:

"When you desire to construct a glass window, first make a smooth wooden board twice the size of the design, cover the same with a coating of white chalk, and draw thereon with lead or tin, using a rule and compass, a full outline. This done, draw within the

outline such figures and ornaments as you like, first with lead or tin, then in the same manner with red, or black pigments, making all the strokes carefully, because it will be necessary when you shall have painted the glass to join shadows and lights according to the plan on the board. Then arrange the various draperies and mark down the colors of each in its place, and whatever else you wish to paint; mark the color by a letter. After this, make yourself some hair pencils, viz., of the tail of a matin, or ermine, or squirrel, or cat, or of an ass's mane. Take a piece of glass larger than the place it is to occupy and lay it flat on the plan, tracing with chalk ground in water the outer strokes only of the pattern on the board seen through the glass. If the piece of glass should be so dense that you cannot see the design on the board take a piece of white or clear glass and draw on that; when it is dry, lay the opaque upon the clear glass, raise it against the light and draw on it what you see through it. In the same manner you will mark all the glass to be used in the window. The glass is then cut to the forms shown by the chalk line by the means of a diving-iron, the iron is made red hot and applied to the glass; as soon as a crack appears the iron is drawn in the direction in which you wish to divide the glass, along the chalk lines, and the crack will follow the iron. Smooth the edges of the glass with a grossing-iron (grosarium ferreum) and fit the pieces together upon the board. Take the color which you are to use and paint the glass with the utmost care, following the drawing upon the board, putting the color on very thin where the lights are to be, and let the stroke be dark where the shades are to be, varying the stroke for different degrees of darkness. When you have made the first shadows in the draperies, etc., and they are dry, cover the rest of the glass with a light color, which should not be so deep as the middle tint in the shadows, nor so light as the lightest, but between the two. This being dry, make, with the handle of the brush, near the shadows which you first made, firm strokes in every part, so as to leave between those strokes and the first shadows firm strokes of that light color. Figures on a white ground clothe with sapphire green, purple and red, while those on the red ground not painted make the draperies white. Paint the borders, leaves, flowers, faces, hands and feet in the same way as the drapery. When the glass is painted, fix the colors by heat in a furnace. And when this has been done place the pieces of glass once more upon the board in their places. After this take a head and surround it with lead grooved on either side, fitting the edge of glass into groove, then put it back in its place, holding it there with three nails, which should be one finger long, slender and round at one end and square at the other. Join to this the breast, arms, drapery, etc., fixing them in place with nails on the outside. With a long and thin soldering-iron made hot apply pewter to it wherever two pieces of lead come together, first taking care to scrape the surface of lead and rub with the iron until they adhere to each other. The window having been completed and soldered in one side, turn it over on the other and treat in the same manner. The design may then be washed off the table or board to make it ready for a new one."

The method of making a window, as described by our monk, was the one employed by glaziers all through the Middle Ages, there was very little change, but toward the end of the thirteenth century there was a marked improvement in the leading; the *vertical lines* were formed to follow the outlines, as far as it was possible, of the figures and ornaments, the horizontal ones were hidden behind the stay-bars.

The windows of the fourteenth century show a steady increase in knowledge on the part of the artists, more particularly in the matter of drawing and the harmonious use of color, the composition remaining about the same as that of the preceding century.

The advance in color treatment was partially brought about by the introduction of a *yellow stain* made from silver, which placed in the artists' hands not only various shades of yel-

low, but a color with which they could warm their white glass and impart to the blue a greenish tone. Its use, however, was very much abused, as it was used as a substitute for pot metal—a glass with the color throughout its entire substance—consequently the windows lost in depth and richness of color. Moreover as this stain was so easy of application and ready in yielding tones of lemon, yellow, gold, orange and reddish orange the artists were always tempted to introduce it in excess.

In addition to the excessive use of *yellow stain*, there was another mode of work which was carried too far and employed too often in the fourteenth century, that known as *grisaille*, white and black, or gray and gray; a style that first made its appearance in the thirteenth century and was largely used by the Cistercians, who, under the rule of S. Bernard, were prohibited the use of color decorations in their churches and were content to have everything painfully plain, as a protest against the luxury, the pomp of color, ornamentation and ritual of their rivals in monastic life: the learned, the art-loving Clunisian monks.

Grisaille and stipple shading were found very useful, and as long as they were used in moderation the brilliancy of the glass did not suffer, but as time went on this shading was made deeper and deeper until the glass became dull, lifeless and almost opaque; moreover, as stippling readily lent itself to stencil work, the windows were overloaded with diaper patterns both upon the backgrounds and upon the draperies of the figures.

This stippling was produced by covering the glass, where a shadow was necessary, with a uniform coat of color, at first a light cool purple was used, at the end of the century a dark brown enamel, the color was then struck with a brush, only the ends of the hairs touching the pigment, in that way picking out the light. These stipple shadows, where great depth was sought, were applied to both sides of the glass.

Toward the end of the fourteenth century the painters on glass began to assert themselves, breaking away from the tutelage of the architect. They claimed for their inspirations a place of honor independent of the architectural design, and ignoring the idea that picture windows were but accessory to the architecture of the building in which they were to be placed, ultimately aimed alone at pictorial effects. Abandoning the traditions of the great school of the thirteenth century, they forgot the rule "that all ornament should consist of enrichment of the essential construction of the building," that all parts should be in harmony with the whole in order to produce an artistic *ensemble*, that the glazier cannot be successful where he acts independently of the architect, as his windows, as well as all other decorations, should form an integral part of the architect's design. The sins of the glass painters of the fifteenth century were still greater, for it mattered little to them if their windows were out of key with the general design, or if they admitted too much or too little light. Their sole wish was to make their work do them honor, to manifest to the world what they could do, instead of carrying out what was required by the architecture. Alas! it is to be feared they have too many imitators in this our age of artistic enlightenment.

The abandonment of the fixed canons of the art, the abuse of materials, and the exaggeration of individualism were suicidal steps, marking the beginning of the end of good glass work, the deterioration becoming complete just as the glass painter in his pride had exalted himself above his art. But his reign was short, the days of picture windows of color glass were numbered, the world was about to see a revolution in religious thought, which would carry before its destructive march the larger part of the art treasures of mediæval culture, and for years paralyze ecclesiastical art in Northern Europe.

To return to our subject: the glass of the fifteenth century at first was rich and deep in color, its brilliancy depending upon its irregularity in thickness and the presence of air bubbles; but as the practice of stippling the surface increased, the glass lost its richness, and at the same time became more uniform in texture, as the artists found

they could work their enamels, stains, etc., much easier on glass that was mechanically perfect. The ruby glass became light in tone and thin in appearance; the blue, cold and purplish; the yellow, pink and green, stronger and cruder. The best purple was made by placing a sheet of light red glass between two sheets of blue glass; and toward the end of the century white glass was coated on one side with a very thin layer of red, blue or yellow, which was used with good results by cutting a design through the *flash* of color down to the white glass. Bull's-eyes of four and six inches in diameter were largely used in domestic work.

The picture windows were simple in composition, varied in color, often harmonious and generally pleasing; the figures were highly finished, refined and reposeful; the features were carefully drawn; the draperies were heavy, but ample, well disposed in broad folds and ornamented with embroidered borders; the foliage was irregular, flat and conventional. The best examples of the glass of this period, now in existence, are to be seen in the Cathedral of Beauvais, executed by Guillaume Barbe; in the Cathedral of Rouen, by Robin Demaique and Guillaume de Gradville; in York Minster, by John Thornton, of Coventry, who was three years making the window, which still remains uninjured and is singularly rich in design. In addition, there are a number of examples in Germany by Jacques L'Allemand; in Italy, by Bartolommeo di Pietry and Guglielmo di Marcillat, the three last-named painters were members of the Order of S. Dominic. Late in the century the great Albert Durer drew designs which were transferred to glass by copyists, a fatal practice, in which the touch and originality in handling are lost. The sixteenth and seventeenth centuries were rich in painted glass, some of which was artistically good, more of it fair, and most of it bad.

At the beginning of the sixteenth century the artists were very skillful in drawing, handling their colors well, and managed their shadows with great knowledge, but their windows were more pictorial than decorative and wholly divorced from their architectural surroundings. At the end of the century, and all through the next, the glass rapidly degenerated, the art finally passing from the hands of artists into the greedy grasp of the tradesmen to find its death in the eighteenth century.

The last windows made, in which there was still some artistic merit, are those in the church of S. John at Gouda, painted by Clox, Crabettis, Dirk, Wonter, De Vrye and Daniel, all Netherlandish artists. In these windows the painters introduced strongly-painted landscapes, Renaissance arcades and corridors, although the church is Gothic—a fact that was of no moment to them. Their sole aim was absolute realism, startling prospectives and elaborations; they looked upon the glass as if it were canvas, and the result was what might have been expected from a wrong use and abuse of a material: they failed to obtain anything of lasting and artistic value.

In the seventeenth and eighteenth centuries the use of enamels became so excessive as to almost do away with pot-metal; many windows were made wholly by painting and staining white glass. The art was now solely in the hands of manufacturers and the windows became purely articles of trade, with a very poor market which became smaller and smaller from year to year until all demand ceased. Thus at the end of the eighteenth century the noble art of placing images of beauty between earth and heaven for the edification of the people, for glory of art, the love of beautiful and the honor of God, disappeared for a time from off the face of the world.

The demise of the glazier's art in England and wherever Protestantism became paramount, was complete from the first appearance of the new faith. Its death among the Catholic nations was slow and lingering, passing through many stages of deterioration until it sank, together with all other forms of ecclesiastical art, out of sight in the chaos of the French Revolution, never to live again until the revival of the principles that first gave it being or at least called forth its greatest work,

viz.: That it was a part of the duty of man to use temporal beauty not alone for his own pleasure, but for the honor of his Creator, for the manifesting of his love for God by constructing material and perishable substances into eternal tabernacles of praise, to be houses of consolation, and the mirrors of eternal truths.

The last "pre-Reformation" window in England of which we have a record, is one representing the crucifixion now in S. Margaret's church, Westminster. It was originally made for the magistrates of Dort, who intended to present it to King Henry VII., but, he dying before it was completed, it fell into the hands of the Abbey of Waltham. At the dissolution of that house by Henry VIII. the window was removed to New Hall in Wiltshire; it subsequently, in turn, became the property of the Earl of Ormond; Thomas Bullen, the father of Queen Ann Bullen; the Earl of Sussex; George Villiers, Duke of Buckingham; it then passed into the possession of Gen. Monk, who, to preserve it from the "image-breakers" of his time, buried it in the ground, where it remained until the Restoration; and at last it was bought for £400, almost three hundred years after t was painted, from a Mr. Conyers, by S. Margaret's Church.

To all lovers of art it must be a constant regret that the picture-windows which once glazed the 45,000 churches and 55,000 chapels that existed in England prior to the change in religion did not meet with the same happy fate as that of the Crucifixion of S. Margaret's.

The extent of the spoliation and destruction of works of art under Henry VIII., Edward VI. and Elizabeth is almost beyond belief, if we had not the reports of the Commissioner of the Crown to prove the fact. Everything that could be turned into money was taken: the gold and silver vessels, the fabrics themselves were pulled down for materials with which to build the mansions of the courtly founders of the "new learning. Even the tombs and funeral monuments were violated "for the greediness of the brass, the dead cast out of their graves for the price of their leaden coffins," the vestries rifled of their vestments, the pictures that adorned the church were either purloined or defaced, the windows sold for their glass, or left to decay, or willfully broken, and there is no doubt they would have been all removed from the 10,000 churches that were left after this wave of destruction had spent its force, if the removal would not have exposed the congregation to the inclemency of the weather. Harrison, an Elizabethan writer, in his description of England, says the pictured windows were not taken down because it would have cost too much to replace them with clear glass. These are his words: "Monuments of idolatry are removed, taken down and defaced, only the stories in glass windows excepted, which, for want of sufficient store of new stuff, and by reason of extreme charge that should grow by the alteration of the same into white panes, throughout the realm, are not altogether abolished in most places at once, but by little and little suffered to decay, that white glass may be provided and set up in their room." The windows that escaped the general ruin were to find their destroyers in the Puritans, who, becoming impatient of this waiting for the hand of time to destroy the remains of Catholic art, visited church after church, under the authority of Parliament, and proceeded forthwith to overthrow and smash into bits almost all the picture windows that were left, for they had no love of God's light that passed—

"Through the dim Gothic glass of pictured Saints
Casements, through which the sunset streams like sunrise,
On long, pearl-colored beards, and crimson crosses,
And gilded croziers, and crossed arms and cowls,
And helms and twisted armor, and long swords;
All the fantastical furniture of windows,
Dim with brave knights and holy hermits."

In Exeter Cathedral they demolished all the windows; at Winchester they fired bullets through those which were above their heads, having first broken into atoms all within their reach with their pikes and the butts of their guns; at Canterbury one of their number

ascended a ladder of sixty steps to rattle "down proud Becket's glassy bones," and one band under the command of Sir Edmund Walter in the short space of three months destroyed no less than 701 pictures, 32 statutes, numbers of crosses, crucifixes, roods, and numberless glass windows. In Catholic countries the art disappeared through a revival of pagan realism, of pagan architecture and pagan decoration. There was little place for colored windows in the churches engendered by the Renaissance and its meaningless child, the Rococo, the antithesis of mediæval art. Palladio and his followers of every nation kept the windows of their buildings in clear glass, looking to Grecian and Roman art for their criterion, and, as this spirit of paganism spread, the faith of the people was weakened, selfishness increased, the cycle of human existence was gradually bound within a circle of materialism that left no reasonable motive for action beyond eating and drinking, the avoidance of pain and the enjoyment of the moment. Therefore they ceased to build churches, and those that existed were allowed to fall into a ruinous state. There was no room for art of any kind, except as a factor in giving sensual pleasure to the "best man," and even this ended in France amid the atheistic orgies of 1798. From this rapid survey of the history of colored glass windows the following canons may justly be drawn, and it is my belief they should largely guide the artist of to-day:

I.

The color value of glass, its principal excellence, depends for its brilliancy upon the pureness of the color and its unequal distribution, together with an unevenness of texture in the glass.

II.

Next to color, the chief excellence of glass, for decorative window work, is its translucency, and in order to render available this quality, to the utmost extent under every conjuncture, paint and enamels should be avoided as far as possible, as they lessen the translucency, augment the opacity and make the glass lifeless, hence the mosaic system of work should be followed.

III.

As leads are necessary in the construction of a color-glass-window, and as their office is primarily mechanical, they should, therefore, be made an integral part of the design in order to overcome their purely constructive appearance; moreover the lead lines should be softened, where it can be done without interfering with the general effect, by plating them with glass.

IV.

The worker in glass should never seek for an effect which is incompatible with the material.

V.

It is to be remembered that the glazier's art is but a handmaiden to architecture, therefore colored-glass-windows should be in harmony with their architectural surroundings, not only in color but also in form.

VI.

Glass work has its own proper field, and the moment it leaves that field it deteriorates.

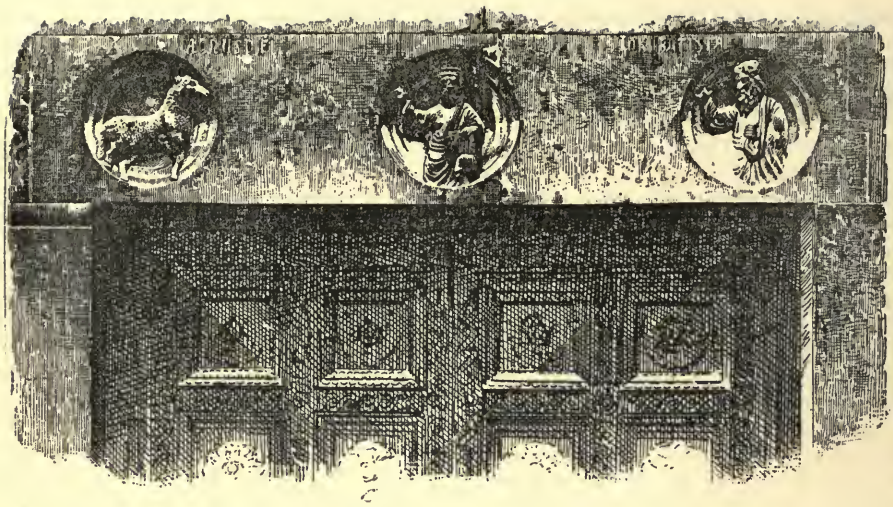
VII.

Truthfulness in the glazier's art, as in all arts, is essential to its lasting success.

VIII.

As the commercial spirit kills all true art it is to be avoided by the artist in glass, if he hopes to attain the best results, and be remembered by posterity.

Caryl Coleman.



A HINT FOR PREPARING FOR A COUNTRY HOME.

LONGING for a country home develops itself early in the career of very many city-born men and grows with advancing years. A country boy who goes to a city to strive for a name or fortune is so captivated with the novelty, the excitements and the allurements of town life, that many years pass by before he becomes surfeited and turns, as almost invariably he finally does, with tired heart for the peace of his early surroundings. Women, as a rule, care less for the country than men ; they prefer the conveniences, the ease, the social advantages of the city ; and for a summer vacation choose a sojourn at a watering-place hotel rather than at a farm-house. There are exceptions, of course, to this rule, many women being passionately fond of country life, its recreations and activities. It has often been observed that city men and women enjoy outdoor sports to a far greater degree than do people born and brought up in the country. They frequently astonish the latter, with their zest for hunting, fishing, boating, riding, driving, and the like.

The great bulk of business and professional men have sparse time to devote to sports. In getting on in the world their time is fully occupied, but as a man's family grows up around him the question as to where to house them under the most favorable conditions becomes a serious one. Not infrequently he concludes to buy a country place, and he mentally determines on the kind of place that he wants. It must not be too far away from his office, and it must be obtainable at a moderate price. He sets about making inquiries among real estate agents, and finds that there are any number of places and at prices that are within his set limits, and in any direction that he wishes to go. He visits several, but one by one in turn they prove disappointing for one reason or another, and he ends by buying none, or perhaps he buys a more expensive place than he at first intended, and yet one that is not what he had pictured in his own mind.

An old place is usually a good thing to leave alone. Too frequently the house is inconvenient, the rooms stuffy, the cellar damp, the drinking water impure, the grounds laid out without taste or skill, the shade trees in the wrong places, and the orchard in its dotage. The surroundings are rarely good, and the following advice is worth heeding: Beware of buying a place on

the strength of a photographic view looking toward the front of the house. After a purchase is made, alterations to the house are in order, and in a surprisingly short time it will be found that about as much money has been expended for changes and improvements as was paid for the house itself, and possibly without increasing its value in the eyes of the next purchaser.

A brand-new place frequently means to live in a chaotic state, no shade trees, no fruit trees, none of the commonly looked for accessories of a country place for many years. An investment in a few lots of ground and a new house is one of the many schemes of suburban land speculation which does not meet the needs of a city man for a real country place, however much such suburban homes are exactly what is wanted by a class of persons who desire to live with more comfort than their limited incomes enable them to do in the city.

Now, recognizing the want for inexpensive *country* places, with the grounds laid out in a sensible manner or as the occupant wishes, and the house modern and exactly what the occupant likes, in what way are such places to be obtained? The brief and direct answer is that each man must prepare his own country place. This is not a difficult thing to do, there is much pleasure and healthful recreation in the doing of it, and but a moderate amount of money is required.

The younger the man is who starts to make for himself a home in the country the better, nor need he be married. Bachelors become benedicts, and if a few remain single they, too, require homes quite as much as their married brethren. Neither is a goodly income necessary, for a very moderate sum of money is sufficient for the start, and as the huge oak grows from the small acorn so will the homestead surely and almost imperceptibly develop from a very small beginning. The ownership of land brings out qualities in a man's nature that otherwise remain dormant, such as pride of position, which will keep him respectable; the love of country is a very healthy love, and contributes to make him not only self-respecting but respected by his friends and neighbors. The investment of a couple of hundred dollars in a few acres of land; the preparation of the ground, the planting of trees, the making of roads, the building of a house and barn; these are the work of years perhaps, but they beget thrift and economy and purpose. And when the work is complete, however slow it may have been of accomplishment, the homestead will give such comfort to the owner and his family, if he have any, as to well repay him.

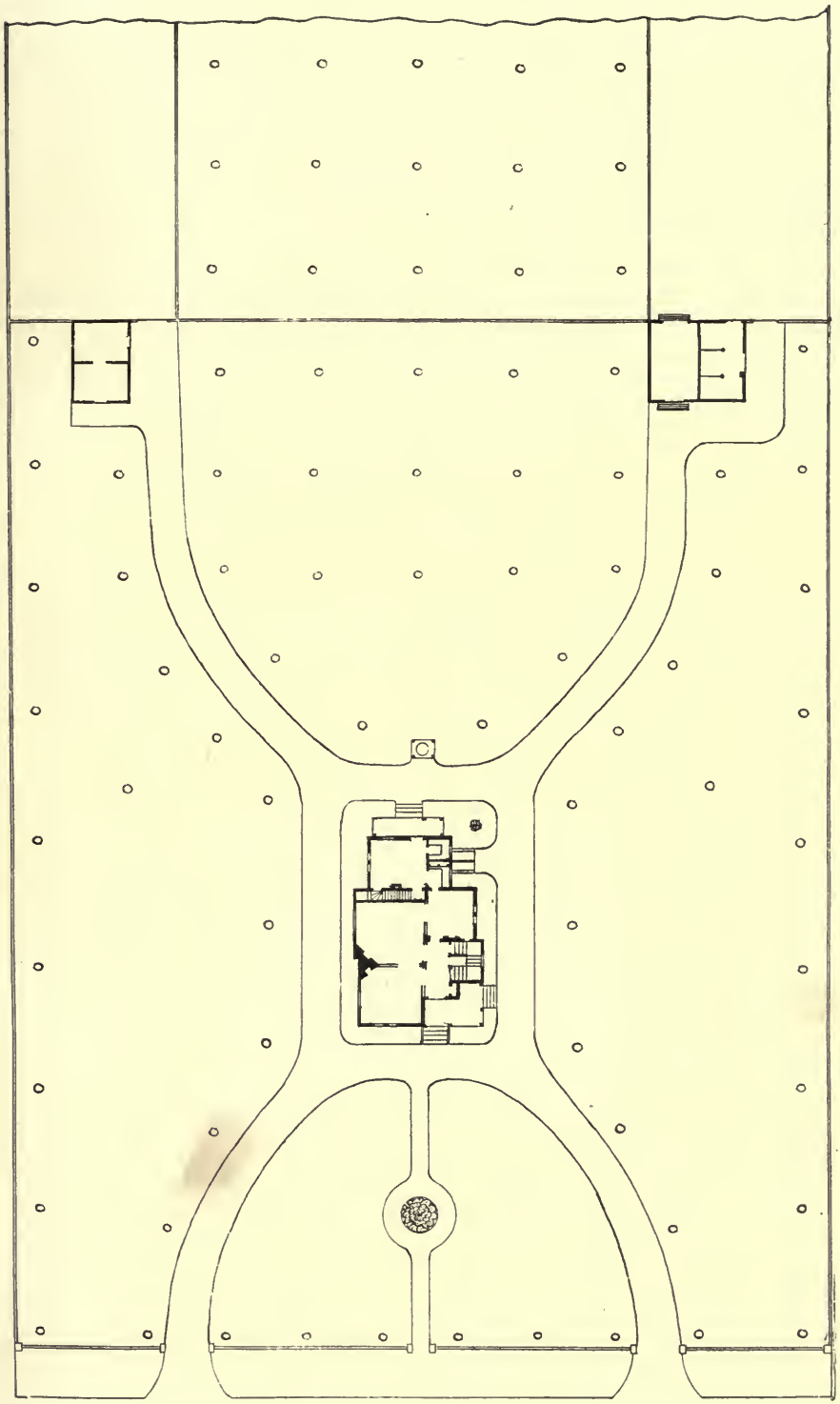
There are a great number of city men whose vocations enable them, during the summer months at least, to leave their offices and places of business at comparatively early hours in the afternoon, say four or five o'clock, and to arrive at comparatively late hours in the mornings, say nine or ten o'clock. Within forty to sixty minutes' ride by railroad, within a distance of twenty-five or thirty miles from New York—to name one city as an example—in almost every direction, is plenty of land used only for farming purposes and valued only for such use; or wild land really not used for any purpose, although beautifully situated. In starting out to purchase, keep on the main line of a railroad rather than on a branch road. Take a way-train and get off at some small station, which according to the time table gets scant accommodation. Small settlements grow, oft-times rapidly, and with their growth get much better train facilities. Within a mile from that station a strip of high land of almost any of the farms can be purchased, and one hundred dollars an acre would be a liberal price for it. Three acres are sufficient for our purposes. There are 43,560 square feet in an acre. A strip, fronting 200 feet on the road, by a depth of about 650 feet, will contain, say, three acres. If a purchaser does not care to trust his own judgment in selecting a site, it is easy to secure the services of some experienced person to act as advisor. A wise man anticipates his wants, and the purchase of land should not be delayed because it does not happen to be actual summer time. The fall or early

winter months is a better time to make a selection than when the full foliage of trees and bushes obstruct the view. A farmer gives little thought to the proper location for a dwelling, and the most desirable building site may be on that portion of his farm which he values the least. Usually land near a line of railroad can be bought cheaper than land further away, as farmers are afraid of locomotive sparks setting fire to ripening crops, such as rye, wheat and oats. If possible select a strip of land having a durable brook running the whole length of it or across it. A valley where the land for the most part is level, with hills rising in the distance, is preferable in many respects to the hilly locations most affected of late years by city people for villa residences. In driving daily to and from the railroad station a level road is much more agreeable and expeditious to travel over than a hilly one.

The illustration which accompanies this article is given as a hint for the arrangement of a country place. Little explanation is needed. It shows a plot of ground 200 feet in width by 250 feet in depth, containing a little more than an acre within the line of fence. One or more additional lots fill out the rear. Assuming that such a strip of land has been purchased, the first thing to do with it is to remove every tree on the front lot and have their stumps extracted. Then the lot should be ploughed, graded and rolled and seeded. In the Fall or Spring the trees are to be planted. A picket fence, using white oak or chesnut posts and hemlock picket, should inclose the whole lot, and the front line of the fence should be set back, say, six feet from the line where the ordinary farm fence is found. The line for the front of the house should be placed back from the new front fence line, say, seventy-five feet. Referring to the illustration, it will be seen that along the front ten shade trees have been located. Down each side fence are eight cherry trees, these combining fruit and shade. Surrounding the location for the house are eight maple trees, and on one side of each of the two front carriage roads are two shade trees. Along the back roads are placed pear trees, eighteen in all, and intervening, in three rows of three trees each, are nine apple trees. Thus, within the inclosure, the sixty-five trees located, shown in the illustration, have been accounted for. Additional apple and other fruit trees may be placed in the rear lot to any desired number. The trees should be planted with as little delay as possible, so as to start them growing. Trees are cheap, of great variety, and readily obtained from numerous nurseries. The roads should be staked out and gradually made using all the old stone on the place for the bottoms. The farmers in the neighborhood, at odd times, with their teams, will do almost any kind of work required at reasonable rates.

The plan of the house given in the illustration is only a suggestion. In laying out the grounds there is required merely a liberal space allotted for the house, and then the dwelling may be large or small, as ultimately decided upon. It is not a bad plan to build the kind of a house that may be regularly added to and increased in size when additional room is required. An alternative is to build a small, cheap cottage for temporary use and, if future prosperity comes to the owner, replace the house in due time with a larger and more costly one.

The illustration shows rather an old-fashioned, but convenient treatment for the roads; an elliptical-shaped carriage road in front, and a straight foot-path—many will prefer to omit the latter, leaving the space entirely in lawn—and a road to the stable and paddock, and one to the chicken house and kitchen garden. It is a simple treatment for an inside lot. Circumstances alter cases, and the lay of the ground would have much to do with determining just how the roads should run. A corner plot of ground would require a different treatment, and if there be a stream of water or some other special feature on the place the plan needs to be made to conform thereto. Before proceeding with the improvements the plot should be mapped, and every proposed thing marked thereon to a scale—roads, trees, etc. The work is interesting at the start,



A SUGGESTION FOR PLAN OF GROUNDS.

and becomes more so with every step taken. He who fairly starts in will not turn back.

Much land only brings much vexation. To live in the country without a horse and cow is to deprive one's self of the ordinary comforts of country life; but it is cheaper to hire pasture than to own land, cheaper to buy hay than to raise it. Indeed, the city man will be wise to do no farming of any kind, and to resist the temptation to buy more and more land.

The growth of population in New York, as in other large cities, is crowding people out farther and farther into the suburbs every year. By the many railroads, twenty-five to thirty miles is not more distant now in point of time than was Harlem from the City Hall ten years ago, nor has the longer distance a tithe of the discomforts that have to be endured in going a comparatively short distance within the present city limits to-day. Outlying farm lands will gradually increase in value and come into greater demand for residence purposes. A safe and profitable venture would be to take a favorably situated farm, divide it up into two or three acre plots, plant trees and otherwise prepare each plot for future building sites, and then calmly wait a few years before offering the plots for sale, when purchasers in plenty will be found at prices many times over the cost.

William J. Fryer, Jr.





DETAIL OF FRIEZE IN LATERAN MUSEUM.

MOSAIC AS AN INDEPENDENT ART.

"A vera pittura per l'eternità è il mosaico," wrote Domenico Ghirlandaio, the famous Florentine painter, in the second half of the fifteenth century. Mosaic, however, was to him not the servile handmaid of painting it became towards the end of the Renaissance period, having the blind imitation of its mistress as chief scope of its being; but an art in itself, eminently fitted for clothing with breadth of color and sculpturesque form the walls or pavements of palace or of church.

From the most remote times have mosaics been used as means of decoration. They were laid under requisition first where, painting being impossible or inconvenient, the eye yet craved the breaking up of some large uniform surface, as in pavements or great extent of wall; then where the artist required durability or special splendor and breadth of color, or harmony with architectural form, as in outside pictures, in domes, apses or cornices. We all remember the description of the palace of Ahasuerus in the book of Esther, where, amid hangings of fine white and blue cloth, couches of gold and silver stood on a pavement of *porphyry and white marble and alabaster and stone of a blue color*. Ptolemy Philopatre is said to have had a saloon in one of his ships "ornamented with figures made of little stones of various colors," and Hiero, Tyrant of Syracuse, had the whole of the Iliad represented in mosaic on the deck of a galley. The two last seem to have been mosaics in the true sense of the word, formed, that is, not merely of colored marbles (an arrangement known to the Romans as *lithostratum* or disposition of stones), but consisting of cubes of marble and enamel intermixed. This combination, giving the artist greater resource, enabled him to produce works of greater effect, to which the name mosaic (musivum) was properly restricted. The two kinds of decoration are often confounded under one name, though the one is evidently vastly inferior to the other as regards resource of development and the demands it makes on taste and technical skill.

The Romans fell in love with mosaic as taught them by the conquered Greeks, adopting it for the pavements of their palaces and public buildings; Cæsar (at least so Suetonius assures us) even had the floor of his tent made of it. The pavements of their villas, cleared of rubbish in these later years, still shine in all their glory of coloring, and show sometimes conventional designs of great beauty, sometimes scenes from Greek and Roman mythology, or episodes of the circus or the chase.

Sometimes, again, they were covered with *genre* pictures, as in the mosaic from which the "Doves of Pliny" are so frequently copied. "Sosus," says



Pliny, "made at Bergamo, the *Asarotos oikos* (unswept house). It was so called because he had there represented, in little cubes of various colors, the remains of a banquet, which are generally swept away, and which seem to have been left there. There is a dove drinking, and the shadow thrown by his head on the water, while others plume themselves on the side of a bowl." Or, again, the artist obliged the owners of the villa to walk continually over a crowd of monsters, men, buildings, rivers, in which unity of design was lost in multiplicity of detail, or over fighting beasts or fighting men.



One really beautiful and spirited mosaic, found at Pompeii, and now in the museum at Naples, represents the battle of Arbela. Alexander, in the act of spearing a Persian leader, is unfortunately deprived of his legs by a break in the mosaic; but the movement of the upper part of the body is full of vigor, as is also that of the Persian leader, and of the crowd of men and horses of the Persian army.

Three hundred years after Christ, Christianity, become now, thanks to the Emperor Constantine, a recognized power in the state, pressed the art of mosaic into its service. As was natural, it first of all adapted pagan traditions to its own requirements, giving a symbolical meaning (as in the church of S. Constance at Rome, built by Constantine himself) to the various vintage scenes which had formerly honored Bacchus. But it soon struck out a way for itself, and by the end of the fourth century had already produced, in catacomb and church, representations of purely Christian scenes and personages. These scenes and personages are of course no longer to be found on the floors of palaces. They clothe the walls of churches. Mosaic has become, in fact, the vehicle of specially religious thought; and such it remains to the present day.

The best of these early Christian mosaics is that of Sta. Pudentiana at Rome. It dates from the fourth century, though it was evidently restored and added to later. The Christ, draped and throned, sits between two lines of adorers. Sta. Pudentiana on one side, and Sta. Prassidia on the other (the two sisters were martyred towards the middle of the second century), hold crowns over the heads of St. Peter and St. Paul. The semicircle of figures is framed behind by porticoes, above which are visible the buildings of a city on each side of a tall jeweled cross, rising from a barren hill. The upper part of the mosaic is occupied by lines of clouds, from which emerge the four mystic creatures—the lion, the bull, the eagle and the angel. The author of this mosaic was in advance of his contemporaries. His figures are grouped in perspective; the faces show variety of expression and lineaments; the heads, well-modeled, are of Roman type; the draperies seem copied from the antique. There is no trace of the angular asceticism so conspicuous in the thirteenth century work of the Baptistery at Florence. M. Vitel, the famous French



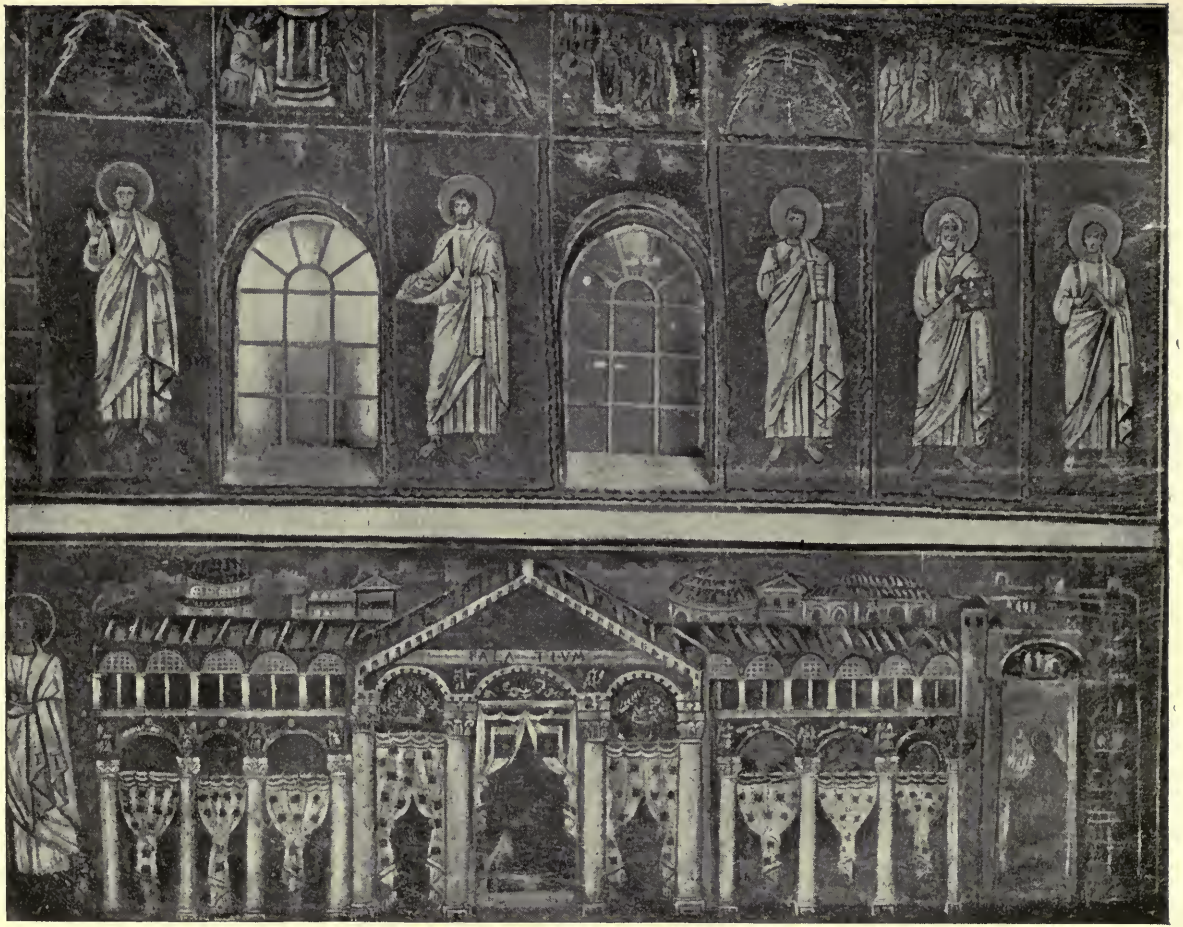
MOSAIC IN CHURCH OF STA. PRUDENTIA, ROME.—ANNO DOMINI 384–396.



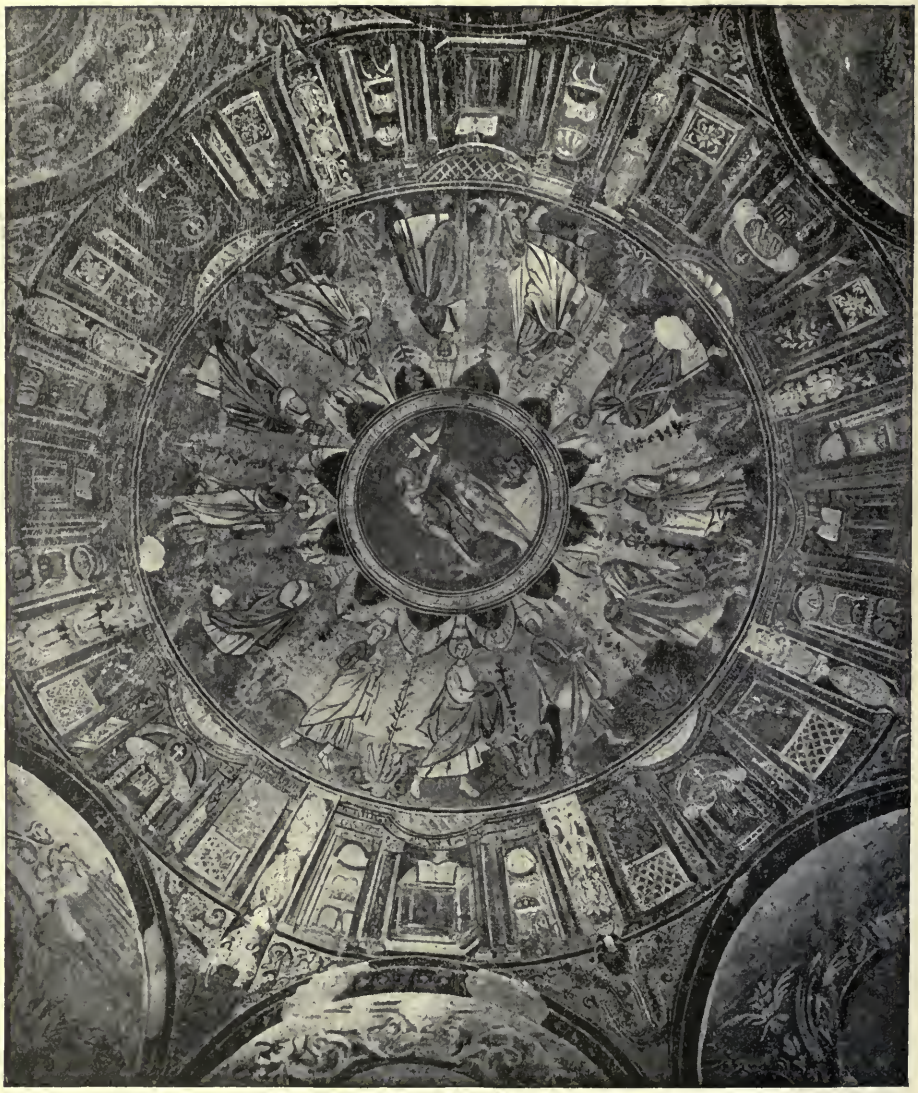
MOSAIC IN MONUMENT OF PIUS IX., ROME.

critic, sees in its composition "quite new treasures, chaste expressions, a flower of virtue, a moral grandeur with which the most beautiful works of antiquity are but imperfectly imbued."

Having once adapted mosaic to its own use, Christianity carried the art with it into all parts of the world. By the end of the fifth century, the walls not only of the churches in the various parts of Italy, but of those in Constantinople, Thessalonica and France shone with gold and color. It was at this epoch (under Pope Hilary, 461 to 467), that the charming symbolical decorations in the Church of St. John the Evangelist, at Rome, were made. The council held at Constantinople in 692 had not yet decreed that realistic scenes from the life of Christ should be permitted for the allegory of symbols; and the artist was free to cover the roof with flowers, fruits, and birds, around the central figure of the Lamb. But it is to Ravenna that the lover of mosaics must pilgrimage if he would admire the full development of the art of that period. There the Empress Galla Placidia clothed the walls of her husband's mausoleum and of the baptistery with a bewitching harmony of figures and symbols. The use of the blue background (which Raphael also adapted, centuries later, in the only mosaic he designed), is at once restful and elegant; and it enables the artist to employ gold freely in the dresses of the figures. The example set by Galla Placidia became a tradition. Herulians, Ostrogoths, Greeks continued the work, and Ravenna, notwithstanding all the turmoil of war and continual change of government, became, during the fifth and sixth centuries, a veritable city of mosaics. Giotto made a pilgrimage thither, more than seven centuries later. It is even said that he found the type of his Judas in the thick-lipped figure which gives the traitor's kiss, in one of the mosaics of S. Apollinare Nuovo, a church built and decorated by Theodoric the Great. Well known is the Christ from the Church of S. Vitale, which was dedicated under Justinian. It is in fact one of the best representa-



MOSAIC IN THE CHURCH OF S. APOLLINARE NUOVO.



MOSAIC, THE BAPTISM OF ST. JOHN.—RAVENNA, IVTH CENTURY.



MOSAIC IN THE CHURCH OF S. VITALE.—VITH CENTURY.



MOSAIC IN THE BAPTISTERY, FLORENCE.—XIIITH CENTURY.

tions of the early idea of the Saviour, and figures him as a beardless youth, of much sweetness of expression, not as the bearded, hard-featured judge of the later Middle Ages. The difference in the two conceptions comes out strikingly on comparing this Christ in S. Vitale with the Christ of the Last Judgment of the Florentine baptistery.

Meanwhile the decadence was progressing rapidly at Rome. Perspective was going out of fashion. The childish habit began to prevail of making size and richness of dress proportional to moral grandeur. The sense of symmetry and harmony was lost. There remained but a semi-barbarous love of color. The inscriptions on the mosaics of the succeeding centuries vaunt the splendor of the "cut metals which produce a painting of gold ; and the light of day seems to be caught confined there. The dawn, like liquid clouds, appears to warm and vivify the country."

For six dreary centuries did this artistic depression continue; until at last, under Pope Innocent II. (1130-1143), Rome roused herself from her lethargy and began to produce work of real mosaic art once more. Rome, Venice, Sicily, the Holy Land, France, produced in mosaic figures whose pose and action were already superior to those of the painters of the thirteenth century. Venice set seriously to work at the decoration of St. Mark, but the most amazing production of her territory at this time was the ornamentation of the cathedral on the little island of Torcello, now rarely visited ; though the interest and good preservation of the mosaics will repay study.

Once begun, the work of revival grew apace. The thirteenth century shows us a crowd of mosaicists busy in all the chief towns of Italy. From Rome and Venice the fever spread to Florence, where it was resolved to undertake the decorations of the Baptistery. Andrea Tafi, intrusted by the *Magnifici Signori* with the work of the Cupola, went to Venice to study the art among the Greek mosaicists, then engaged on S. Mark's. He brought home with him a Greek named Apollonius, and the two, with Gaddo Gaddi, covered the Cupola with a representation of the Last Judgment. The coloring is rich, but the undue crowding, nay heaping up of the figures, reveals an absolute want of any sense of architectural fitness. The figures are angular and monkish, the draperies stiff. It is a long step indeed, from the modeling of the figures in Sta. Pudentiana to the treatment of those in the Florentine Baptistery. The first still show the influence of free Greek art; the second of Greek art enslaved through long years by the confining dogmas of the Church. Gaddo Gaddi perceived some of these faults, and, intrusted with the execution of the prophets under the windows of the Baptistery, tried "to unite the Greek manner with that of Cimabue." But his masterpiece in Florence is the Coronation of the Virgin over the great door of the Cathedral; a composition in which, though traces of the old style still remain in the overcrowded lower part, the process of emancipation is nevertheless clearly visible in the more natural movement of the principal figures, and greater delicacy and transparency of the coloring.

Gaddo Gaddi was afterwards called to Rome, where the Franciscan monk Jacobus Torriti, as he signs himself, had died at the end of the century, while executing his masterpieces in St. John Lateran, "*omnium urbis et orbis ecclesiarum mater et caput.*" Specially worthy of note is the apse of the Church, dominated by the miraculous head of Christ which is said to have appeared to Constantine, and to have remained intact from that day to this, though subjected seven times to the flames and often removed from its original position. As at present existing it is certainly the work of Torriti, and is remarkable mainly for the expression, but also for the art with which, by a clever mingling of red, blue and white cubes, with the black, the graceful fluidity of the hair and beard has been attained.* Torriti may be con-

*In the accompanying photograph the white lines represent lines of brown or blue cubes ; some of them are not homogeneous, but composed of red and blue cubes. When looked at closely the colors are clear and distinct; from afar the mass is black and transparent.



THE CORONATION OF THE VIRGIN, IN THE CATHEDRAL, FLORENCE, BY GADDO GADDI.



MOSAIC IN ST. JOHN LATERAN, ROME.

sidered the last of the mosaicists of the old school. To him mosaic was still an independent art, whose resources must, however, be kept in dependence on the architectural requirements of the building to be decorated. His figures are in perfect proportion with the dimensions of the edifice and the height at which they are placed. They are sculpturesque, yet never stiff; the draperies are supple, the coloring transparent. The artist never loses himself in detail; the unity of his conception impresses the gazer with a sense of grandeur eminently in harmony with the whole atmosphere of the place. Those who worked after him—the Rusuti, the Cosmati, Gaddo Gaddi—were already on the downward road. They began to multiply detail and to produce rather a series of pictures imitative of Giotto than a well-conceived decorative whole. The tendency was continued during the following century, when mosaic was eagerly followed by the painters of the earlier Renaissance; but for the more immediate and profound influence of painting on mosaic we must turn, not to Rome nor to Florence, but to the Cathedral of the Lagoons, St. Mark's at Venice.

Isabella Bebarbieri.





FRENCH CATHEDRALS.

PART II.

V.

THERE can be no greater mistake than to speak of the eleventh, twelfth and thirteenth centuries as "dark ages." From the time when Charlemagne proudly and laboriously undertook to bring about a revival of art and learning, the trend of thought in central Europe has been onward. Not always, perhaps, as we now understand progressive movements; the three centuries were unequal in civilization; men could not emerge at one bound from the darkness into which the fall of the mighty Roman empire had plunged them. The age culminated in the thirteenth century, which witnessed one of the most remarkable outpourings of human genius.

Religion was the dominating influence in the Middle Age, the source of its life, the one thing around which its culture centred. Preceding centuries had been experimental stages of Christianity, in which the faith had been adjusting itself to the varied social and political conditions with which it came in contact. They had been times rich in doctrinal growth, in the settling of the Church's attitude, if the expression be allowed, towards God and man. It was struggling to assume its natural outward form, but it required a thousand years for the Pontiffs to become absolute in temporal affairs as they had long been in spiritual matters. The tremendous difference between the early bishops of Rome, martyred by Roman emperors, and their successors in the Middle Ages, is well illustrated by the spectacle of Pope Gregory VII. keeping the emperor, the successor of the once mighty Cæsars, barefooted in the snow for three days before admitting him to an audience (1077). Innocent II. called himself master of the imperial crown, to dispose of as he wished (1130).

History in this period was filled with the doings of popes and kings, of lords and bishops, of high-born men and women. We hear little of the people or of the masses, save in struggles against the lords. Yet the way of advancement was not closed to them. Gregory VII., who subjected the most powerful sovereign in Europe to a humiliation unparalleled in history, was of the humblest origin. Suger, the re-

nowned abbot of S. Denis, the close friend of two French monarchs, and sometime regent of the kingdom, was of similar origin. Thomas à Becket, the most popular saint of the age, owed much of his popularity among the common folk to having been one of them.

The papal supremacy was an indication of the mighty hold religion and religious ideas had upon the people; no infidel or indifferent age could have seen such an evolution of spiritual power. The Crusades supply even more telling evidence. It is impossible for the modern mind to comprehend the enthusiasm which led kings, lords and knights, men, women and children, to leave their possessions and their homes, to travel through strange lands, and seek battle with powerful foes of unknown resources, all from a religious impulse. Without question, the first crusades were the product of a spontaneous religious enthusiasm; never before nor since has religion so moved the souls of men, nor with results at once so disastrous and so fortunate.

The interest of the Crusades is not confined to the light they throw on the religious feelings of the time. They exercised an enormous influence on the civilization of Europe, not, perhaps, so much by direct importation of Eastern ideas into the West as by that broadening of view which inevitably results from travel and contact with new and strange things. So the architectural activity of the Middle Ages in France began hard upon the culmination of the first crusade in the capture of Jerusalem (1099). The twelfth century, which saw the beginnings of many of the great French churches, saw four crusades, of which the first, preached by S. Bernard (1146), was the most famous, and the most disastrous of the entire series. In this century, two French kings, Louis VII. in 1146, and Philip Augustus in 1188, led two crusades in person, and in the following century S. Louis conducted two ill-fated expeditions to the Holy Land, one in 1248 and one in 1270.

The Crusades in the East were the most famous; those in the West the most successful. In the Spanish peninsula a succession of wars culminated in the victory of Las Navas de Tolosa (1212), which resulted in driving the Moors back into the kingdom of Granada. In 1208 began the cruel crusade against the Albigenses in southern France, a crusade nominally directed solely against heretics, with the pious purpose of exterminating their irreligion, but largely influenced by the possibilities of plunder and the gaining of riches in despoiling the wealthy cities and lands of the south. Ultimately, however, these wars brought about the union of northern and southern France. In 1225 the Teutonic Order began the conquest and conversion of the Prussians, and founded a new state in northern Europe.

It would be a mistake to attribute all these movements entirely to religious motives. Religion served as the pretext at the beginning of these expeditions, but not in the sequel. In France, especially, the spirit of adventure had seized the people. Southern Italy and Sicily were conquered by the Normans, 1053–1066, who also made their most famous and permanent conquest, that of England, in 1066. A French prince, Henry of Burgundy, great-grandson of the French king Robert, founded the county of Portugal in 1095. In 1099 a French kingdom was founded in Palestine. In 1204, by a most shameful perversion of the Crusaders' motives, a French prince was made emperor at Constantinople. There was no limit to the ambition of the French people; their successes in Europe spurred them to fresh conquests in Asia. Each succeeding crusade in the East had less and less of the religious impulse of the first, though the piety and faith of S. Louis cannot be questioned. But among the people and the nobility they came to be looked upon as sources of revenue, as providing opportunities for gaining wealth or of leading a life of adventure and of irresponsible freedom. It was a fitting climax that in the year 1327 the Venetian Sanuto should propose a commercial crusade to the Pope.

The commercial element, in truth, finally dominated the religious, and with results infinitely farther reaching, infinitely more extended than the mere

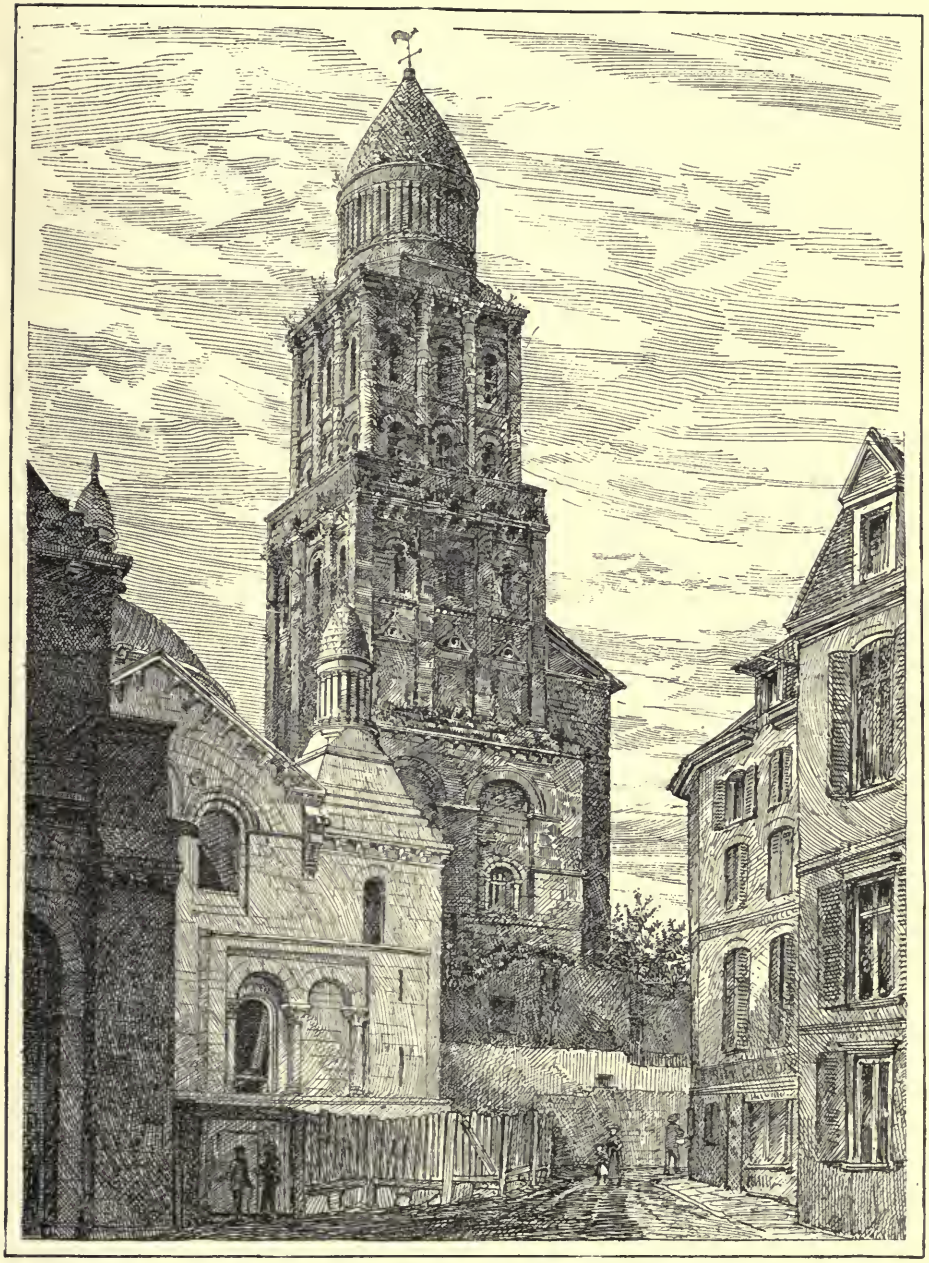


THE CATHEDRAL, FRÉJUS.—SOUTH OR ENTRANCE FRONT.

control of the Holy Sepulchre. Driven back from the East by a long series of disasters, the adventurous spirits of the Middle Ages sought relief for their energies in expeditions which were purely commercial. The rich treasures and products of the far East excited the envy of the West, and the maritime nations, especially Spain and Portugal, began sending forth trading expeditions which culminated in the circumnavigation of Africa and the unparalleled and unforeseen results of the voyage of Columbus—the discovery of a New World. This last great undertaking was a different application of the principles with which S. Bernard and Peter the Hermit had stirred Europe, yet it was nothing more than the closing chapter of that mighty spirit of adventure which characterized the whole of the Middle Ages, and of which the Crusades were the first visible form. And as the commercial feeling grew and increased in strength, until it permeated every line of thought and action, every art and science, every product of human mind and hand, until it holds the world to-day in a firmer grasp than ever religion and art held the people of the Middle Ages, so interest in architecture and art changed and they lost the places they once had. And thus, among the causes which led to the discontinuance of cathedral-building, must be reckoned the voyage of Columbus and its great result, which so actively operated to turn men's thoughts to new channels.

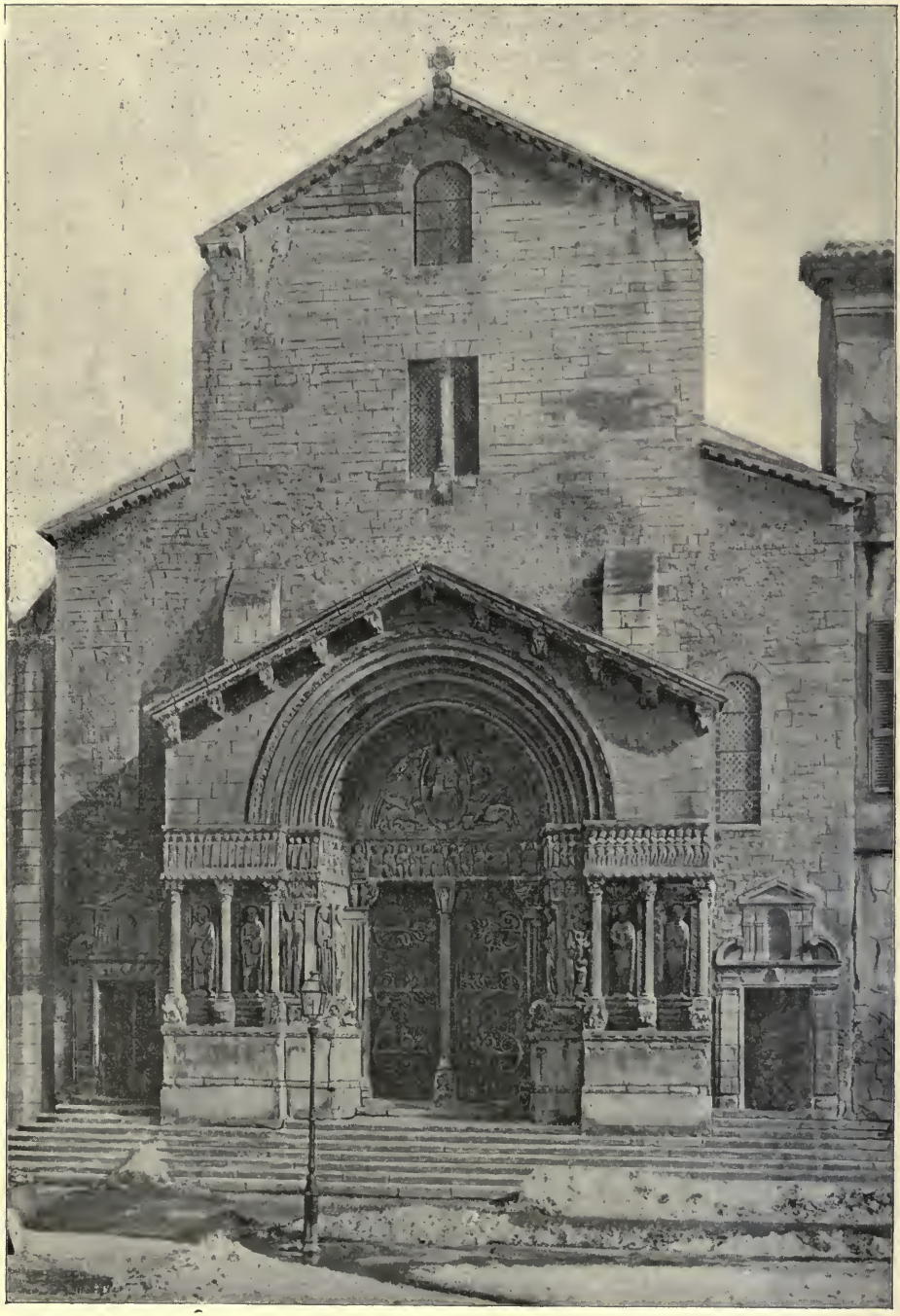
The benefits to Europe of the Crusades were wholly local; failures, so far as the ultimate accomplishment of the end in view was concerned, they stimulated trade, infused new ideas and new life into the stagnant thought of the West, and notwithstanding their disasters and horrors, their rashness and ill-judgments set in motion almost all the factors which made the Middle Ages great. "The Crusades," says Michelet, in one of his brilliant sentences, "made the fortune of the king," and in truth their importance in the development of the royal power and the decrease of feudalism was of abiding consequence. At their beginning, the Royal Domain, France proper, was of limited extent, separated into several divisions by the lands of neighboring nobles, and surrounded by the possessions of powerful vassals, whose wealth and lands exceeded those of the king himself. It was an enormous advantage to the monarchy for the great barons to be actively engaged in distant lands. The king was quick to seize the opportunities afforded by these prolonged absences, and grew in strength and power daily.

The development of the communes was not less important than the movements of the Crusades. The cities of Christian Europe were, before the eleventh century, of two kinds, those that had to create their liberties, and those that, having lost the liberties gained from Rome, had to re-create them. In Italy the movement towards political freedom resulted in the formation of veritable republics; in France such a finality was impossible, because while the cities might free themselves from the direct power of the feudal lord, it was impossible to ignore the king. They could depose their own lord, but the dignity of the king, their lord's lord, was too great for any conflict with it to be hopeful. All feudal lords, both spiritual and temporal, looked with disfavor upon the increased power of the cities, in so far as it affected their own prerogatives, though when it resulted to their advantage, as in the founding of new cities in the neighborhood of their strongholds, and a consequent increase in the wealth of their domains, they were eager enough to grant charters. And, in truth, there is much reason to suppose that profit to the king, from the sale of charters, was a potent cause in the multiplication of communes. To the city of Le Mans, which received its charter in 1066, belongs the credit of gaining the first commune. Two years later its charter was revoked, but the example was quickly followed in other cities. Cambrai came next, in 1076, and then, in swift succession, followed Noyon, Beauvais, S. Quentin, Laon, Amiens, Soissons, Reims, Sens, Vézelay. Louis VI. signed nine acts relative to communes, Louis VII. twenty-three, Philip Augustus seventy-



TOWER, SOUTH FRONT, CATHEDRAL OF PÉRIGUEUX—BEFORE RESTORATION.

Drawn by R. W. Gibson, Architect.



CATHEDRAL, ARLES.—WEST FRONT.



WEST PORTAL, CATHEDRAL OF S. TROPHIME, ARLES.

eight, Louis VIII. ten, S. Louis twenty. Powerful as the communes were in the political life of the thirteenth century they were without the stability essential to their perpetuation. The movement, though widespread, was local. Not until the time of S. Louis did ordinances appear regulating the communes as a whole, and these acts were regulative, and administrative, not creative. The communes, like the feudal lords, committed excesses; they suffered from bad financial administrations and constant internal divisions. Each community lived for itself alone, was interested only in its own liberty and was unaffected by the struggles of sister commune organizations, save as they may have afforded pretexts for gaining more for itself. They filled a political want of the time, and were helpful in diffusing that local pride and feeling which found such wonderful illustration in the great cathedrals. It was not until the fifteenth century, when the Third Estate was so called, that a widely diffused political feeling was developed among the people as a whole. The thirteenth century witnessed the greatest successes of the communes; the fourteenth saw their decay. The dearly bought liberties were not found as valuable in the end as they had seemed in the beginning. Laon, Cambrai, Beauvais and Reims struggled manfully to retain their independence long after many less important communities had ceased to care for them or make use of them. Meulan in 1320, and Soissons in 1333, voluntarily surrendered their communal organization, and asked the royal government to assume their administration.

For just as the Crusades had strengthened the sovereign power so had the communes. The kings granted charters and encouraged the formation of communes, but they cannot be called their creators. The communes were the outgrowth of long smouldering movements, to which the king simply gave voice by the force of circumstances. The sovereign welcomed them as a means of weakening the power of his vassals ; and, in fact, they formed a widely distributed body of men loyal to him and opposed to the feudal lords. The French monarchy found as much strength in the growth of the communes as it had received from the Crusades.

And with this extension of the French monarchy, with the foreign conquests of French arms, with the beginnings, for so it may be called, of French democracy, came also the development of French architecture, and with it that long train of subsidiary arts which makes the Middle Ages so rich in artistic remains. As the Crusades, the conquests and the communes represented new ideas, so did the architectural revival, which reflected the newly-found spirit of democracy in obtaining its most perfected forms in the Royal Domain. It is necessary to remember this fact, since while the records of church building in France in the Middle Ages, and especially in the thirteenth century, are extremely voluminous, they do not indicate a kindred state of architectural feeling throughout the whole country. The history of the monarchy will quite well answer the purpose of illustrating the contact of men and of buildings.

With the exception of the brief reign of Louis VIII., but three sovereigns, Louis VII., Philip Augustus and Louis IX. reigned at Paris from 1137 to 1270, a period of one hundred and thirty-three years. The architectural development —revival is not the word to apply to an art which had no equal in previous times—began under Louis VII. (1137 to 1180), from which time date portions of the cathedrals of Noyon, Laon, Paris, Sens, Senlis, Soissons, Meaux, Chartres, Rouen, Le Mans, Poitiers, Angers, Lisieux and Arras (destroyed). The reign of Philip Augustus (1180 to 1223) was the golden age of Gothic architecture in France, and one of the most glorious building epochs the world has seen. Though lasting forty-three years, the long reign of this prince was quite too short to account for its enormous activity, save on the grounds of extraordinary feeling and energy. From it date the larger part of the cathedrals of Paris, Laon, Chartres, Bourges, Rouen, Soissons, Reims, Auxerre, Dijon, Amiens, Troyes, Coutances, Lisieux,

Tours, Le Mans, Evreux, Châlons-sur-Marne, Dol, S. Brieuc, and Rennes (destroyed). To the reign of S. Louis (1226 to 1270) belong portions of the cathedrals of Beauvais, Béziers, Quimper, Clermont, Bazas, Bayonne, the transept façades and nave chapels of the cathedral of Paris, the choirs of Bordeaux and Meaux, the cloister of Tulle, the tower of Senlis, the apse chapels of Amiens and of Reims. And these are but a few of the typical buildings of a time without equal in architectural activity. Not all of these cities, as we shall presently see, could at that time be rightly termed French, but incomplete as the list is it shows how widespread was then the building activity throughout the land.

VI.

A survey of French mediæval architecture which omitted all reference to the times in which they were built, their history, their men, their events, would fall far short of representing it in its true light. We may analyze the construction, note the variations in type and in style, study the progression towards a final ideal, the relations to other buildings, the influence upon the architecture of other lands, but we would not, at the conclusion of such a survey, have gained the faintest insight into the real motives which lay beyond the mere engineering or architecture of these great monuments. The French cathedrals have a psychological and historical interest which is not contained in their physical properties nor to be found in a minute cataloguing of artistic details. Standing, as they do, as types of an age, it is only by a study of the whole time that they can be understood as expressions of human ideas—though how else should they be understood?—and their full value and meaning realized.

The eleventh and twelfth centuries stand in marked contrast to the thirteenth. The earlier time was an era of monks, of Lanfranc and Anselm and Bernard. In the person of S. Bernard the monastic orders reached their ultimate point of power. Education and politics were chiefly in the hands of the orders. At no period, probably, was the Church wholly free from so-called heretics, and so the few names like Abélard and one or two others that come down from this time need not be assumed to indicate a special falling away from truth. Yet, while the heresies of the twelfth century were individual as opposed to the heresies of sects in the thirteenth, certain general ideas were visible. There was a rationalistic tendency in the Alps and on the Rhône, mystic on the Rhine, and a mixture of the two in Flanders and Languedoc. It was a natural consequence of the religious fervor of the time, as illustrated in the Crusades, that men should evolve new ideas which would be condemned as heretical by older authorities. In 1100 Robert d'Arbrissel founded the famous abbey of Fontevrault, the most important foundation of the time for women, a significant event since the movement which gave woman her proper place in the world was chiefly consummated in this century. It was the era of chivalric orders, of the Knights Hospitallers, later known as the Knights of Malta, founded by Gerard de Martigues in 1100, of the Knights of the Temple, founded by Hugues des Peyens in 1118. In 1115 S. Bernard founded the abbey of Clairvaux, from which was to be derived so many important influences in this and the next century. By the end of the century the great abbey of Cluny counted its offshoots and affiliated monasteries in western Europe to the number of 2,000. The University of Paris rose to a supremacy it never lost, and the French language, by the end of the first quarter of the thirteenth century at the furthest, was all but the universal language of the world. The French of Paris was proverbial. The royal city, remarks a patriotic historian, became the capital of human thought.

The death of the century witnessed the death of the Emperor Henry VI. (1197) and of Richard Cœur-de-Lion (1199); Innocent III., the most successful, perhaps the greatest of the Popes, was chosen Pontiff in 1198. Yet so swift were the changes of the time that but three names, Gregory IX., Innocent



NOTRE DAME DES DOMS, CATHEDRAL OF AVIGNON.



THE NAVE, FROM THE CHOIR OF THE CATHEDRAL OF AVIGNON.

IV., and Gregory X. separates his from that of Boniface VIII., whose humiliation but shortly preceded the "Babylonish Captivity" at Avignon (1305–1376). The century which saw the most splendid development of the Papacy, and prepared the way for its sudden though not complete collapse, was the century of Roger Bacon and of Dante, of S. Francis of Assisi and of S. Dominic, of S. Thomas Aquinas, and S. Bonaventura and Albert the Great, of Duns Scotus and Raymond Lull, of Stephen Langton and Simon de Montfort, of Philip Augustus, S. Louis, Blanche of Castile in France, of Edward I. in England, of Ferdinand III. in Spain and of Frederick II. in the empire. It was the century of parliamentary growth, not alone of the assertion of rights by the people, but of claims for a voice in the general government. The extortion of the Great Charter from John of England (1215) was the most momentous event in constitutional history. Castile and Arragon had had their Cortes in the twelfth century; at the end of the thirteenth England, France, Germany, Sicily, the Swiss had each their representative bodies. With these new forces in the stability of governments came also the beginnings of civil jurisprudence.

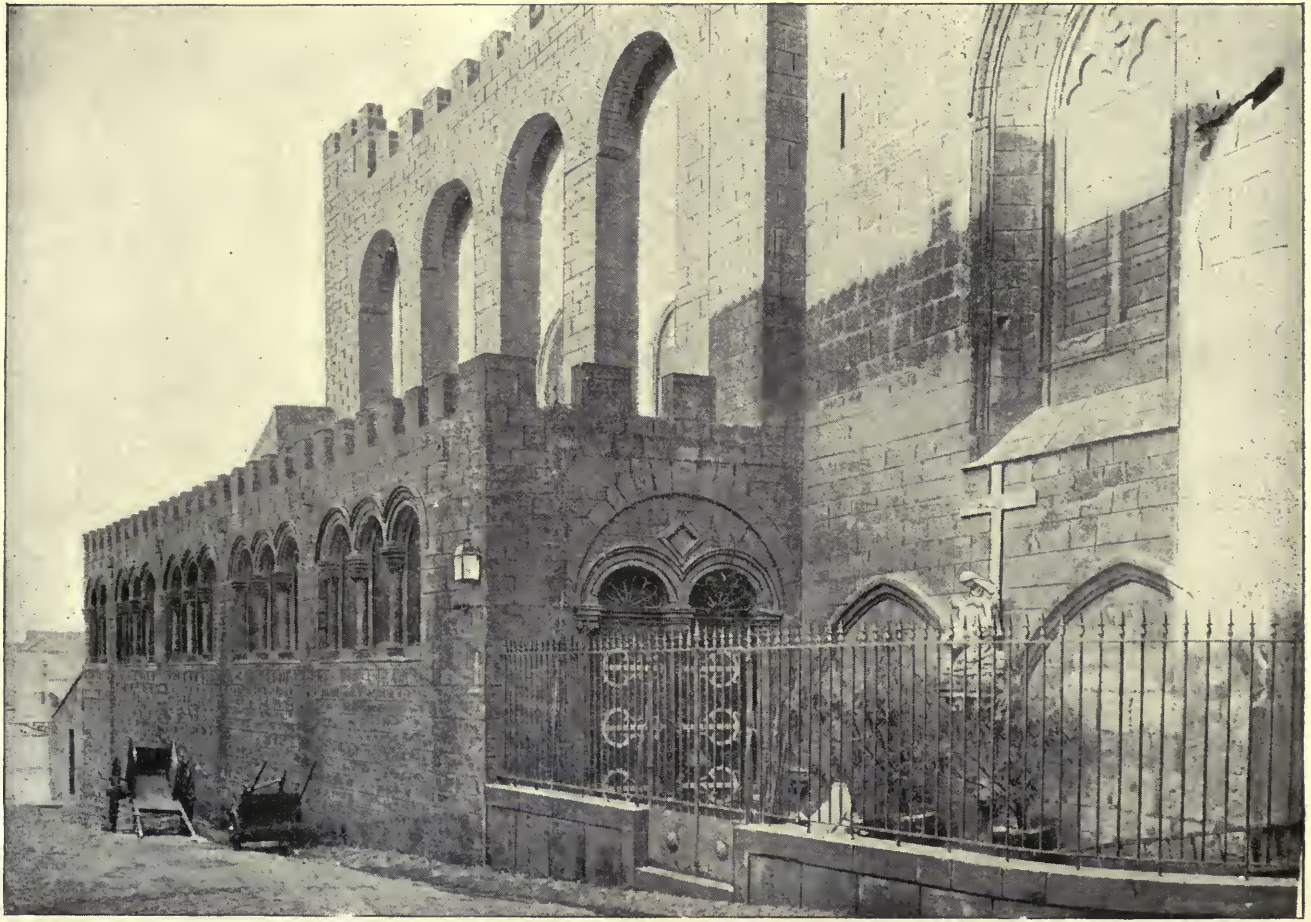
Towns increased in number and importance. In the previous century the richest cities were in Provence and Languedoc, in Italy and in Spain. At the close of the thirteenth century rich manufacturing and trading towns had spread over the whole of Europe, in Germany, Flanders, France and England. In wealth and in power the cities of the north bid fair to surpass, as they did finally, those of the south. On every point, in government, in the expansion and solidification of sovereign power, in the position of the people, in trade, in law, in educational advantages, and in methods of education, there were broadening tendencies and constant growths which are the more marked from contrast with the time immediately preceding. Even the centuries which saw the awakenings of the Italian Renaissance can scarce show the changes that this, the last of the Middle Age centuries, can boast. But the thirteenth century needs no comparison with other eras to bring out its strong points; though the culmination and end of the Middle Ages, it is also the beginning of modern times. It was not the great rulers alone that made it great—though it was a veritable golden age of kingly kings—nor its leaders of men, nor its thinkers, nor its colleges, nor the beginnings of popular rights: it was the combination of these elements, the union of all the mighty forces of this mighty time that raised it above previous times, that make it stand out even from the greatest centuries that follow it.

This period which saw the combination of so many new and strange elements, which witnessed Crusades against infidel and Christian, which heard the voices of S. Thomas Aquinas, of Roger Bacon and of Dante, which saw the king of England lose greater possessions in France than the king at Paris had, which saw the culmination of the Papacy, and nearly saw its fall, in which began representative government and secular schools, in which a king of England died hated by his subjects and despised by his enemies, and in which a French king died in the odor of sanctity, the last emblem of the Middle Ages, giving French royalty a religious authority and prestige for all time;—the time of these events was the time also of a great artistic revival, whose wonderful invention, exquisite grace, deep religious feeling, and marvelous mechanical execution made it a fit expression of the ideas prevalent in contemporary occupations. The architecture of the thirteenth century cannot be separated from its intellectual growth; it is not only an illustration of the intellectual feeling of the period, but an expression of it.

And then, in the fourteenth century came the blighting influence of the Hundred Years' War, during which architecture, as well as other progressive movements, were at a standstill. When this conflict was ended, and architecture endeavored to continue in the fifteenth century the progress it had made in the thirteenth, the old spirit was lost, though the forms had not yet fallen under the influence of a new time.



CATHEDRAL OF BÉZIERS.



CATHEDRAL OF AGDE.

VII.

No state of Europe offers so extended and interesting a study in expansion as France, nor does any other state exhibit such a picture of national development. Unlike the other states of central Europe, France began, it might almost be said, independently of the Empire, inasmuch as the sovereignty did not derive its rights from it; and it not only maintained this independence, but became, in time, the most formidable rival of the Empire. The history of France is not, therefore, a history of a struggle against a sovereign power, as is the case with most continental nations, but a history of expansion from within outward; in a word, a true national growth. And this history is the more remarkable since the dominions of the kings of Paris, in whom the French monarchs had their origin, were, at the beginning, of the utmost insignificance. The domain immediately and properly belonging to the king of France was, under Louis VI., the Ile de France, a part of Orléanais, and the recent addition of French Vexen, comprising scarcely more than the present five departments of the Seine, Seine-et-Oise, Seine-et-Marne, Oise and Loiret. The country we now know as France, and call by that name, was for some time after the close of the mediæval period, and in some instances much later, in the hands of great nobles, often more powerful than the king, to whom they were united only by feudal ties; or else the lands were in the possession of foreign princes whose respect for the feudal relation was greatly diminished by their independent position. First of all, therefore, the development of France offers an impressive lesson in the strength of the feudel power in the Middle Ages. The dignity of the kingly power, rather than its might, more than once saved it from extinction at the hands of powerful and haughty vassals.

Four great states were formed of the empire of Charlemagne in the last great division in 887: Karlingia, the Teutonic Kingdom, and the Kingdoms of Burgundy and of Italy. Of these the last three became again the Empire, but the westernmost kingdom retained its independence and grew, in time, to be modern France. But even at the beginning it was not a homogeneous whole; it included several divisions of which the chief were Western Francia, Britanny, Aquitaine, Gascony, the Spanish March, Septimania, the duchy of Burgundy—distinct from the kingdom of that name—and Flanders. The map of Europe changed quickly in these troublous and unsettled times. A hundred years later Western Francia, properly termed France, was diminished by the great independent duchy of Normandy; Aquitaine likewise suffered through the growth of Gascony and the rapidly increasing extent of the domains of the counts of Toulouse.

The beginning of the expansion of France dates from the eleventh century. The lands of the English then occupied almost the whole of the western part of modern France. It stands as one of the most remarkable facts in mediæval history, that the French sovereignty should not only have survived against odds that at one time seemed overwhelming, but that it should have overcome them and prospered in so doing. The aggrandizements began under Philip I., who absorbed Gâtinais in 1068 and the Viscounty of Bourges in 1100. Under Philip Augustus the additions were much more considerable. Beginning with the additions of Vermandois and Amiens, in 1183, the reign of this prince saw, for a time at least, Valois (1183), Artois (1180–1187), Touraine, Anjou (momentarily 1137–1152), Maine, Poitou Saintonge, and Normandy (1202–1205), and Auvergne (1209) brought directly to the royal domain. Some of these provinces afterwards passed again to foreign hands, chiefly to the King of England, but all were finally absorbed into the French kingdom. The present dates are important in illustrating the powerful impulses towards nationality which began to be manifested in France in the thirteenth century, though as yet it was a nationality of the crown, not of the people. Under S. Louis the greater part of the county of Toulouse was absorbed, Béziers, Narbonne, Nîmes,

Albi, Velay and some others (1229), the Spanish possessions of this house, Roussillon and Barcelona, being, at the same time, freed from French control. The city of Toulouse was not gained until fifty years later. This king also added Blois and Chartres (1234), Gévaudan (1255), Perche (1257), and Mâcon (1239). The reign of Philip III. was marked by the completion of the absorption of Languedoc (1270). The marriage of Philip IV. with the heiress of Champagne and Navarre brought these two divisions under the royal control (1284). Navarre was separated off in 1328, while the incorporation of Champagne with the kingdom was only completed in 1361.

The Hundred Years' War, which ended in the final annexation of Aquitaine to France, as well as most of the posts held by the English, and which was so disastrous for cathedral building, was the next great episode in the growth of the monarchy. The struggle well-nigh resulted in the extinction of the French crown, but Charles VII. was ultimately successful (1451–1453) and united southern Gaul to northern, and with this was the real formation of modern France. The duchy of Burgandy, which escheated to the crown in 1361, and for which a new dukedom was at once created, was not finally absorbed until the death of Charles the Bold (1479). This eastward extension, with the addition of Provence by Louis XI. (1487), is especially noteworthy, since, for the first time, soil which was purely and originally foreign was brought under the rule of the French crown. The marriage of Anne, heiress of Britanny, to two successive French kings, Charles VIII. and Louis XII., added the last province of western France to the crown (incorporated, 1532). The sixteenth century saw also the absorption of Comminges (1548), the three bishoprics, Metz, Verdun and Toul (1552), and, as the patrimony of Henry IV., Béarn, Navarre, Bigorre, Foix and Armagnac (1589). To complete the story it should be added that Calais was finally regained from the English in 1558, eight years after Boulogne had passed into the hands of its rightful owners.

The additions to France in the seventeenth and eighteenth centuries are beyond the cathedral building era. It is well to note, however, since most of these lands contain churches now generally recognized as French cathedrals, that Bresse, Bugey and Gex were added in 1601, Alsace in 1648, and Roussillon and Artois (1659), which has passed from the crown to the duchy of Burgundy. Later additions included Bar (1661), Nivernois (1665), Flanders and Hainault (1668), Franche-Comté (1674), Strassburg (1681), Charolais (1684), Lorraine (1766), Orange (1714–1771), Avignon and Venaissin (1791), and finally Savoy and Nice by Napoleon III. (1860).

Dry as these geographical facts are, they are of value in emphasizing the fact, important to remember in considering French cathedrals as a whole, that the churches we now call French were not all built under the rule of the French crown, and thus all are not, whatever be their present status, French cathedrals in the strictest geographical sense. We are right in so calling them from our modern standpoint, but the conditions under which many of them were built were not the conditions which led to such splendid results in the royal domain. These were, in very truth, French cathedrals, and as we proceed in our study we will find how much they influenced the churches of other parts of France, and thus understand how, in a certain sense, all French cathedrals are united by a common bond.

The relations between the French sovereigns and the various lands ultimately absorbed in their dominions were of a varying nature, depending not alone upon geographical position or feudal connection, but ofttimes upon the personal character and wealth of the tributary lord. Most of them were the lands of vassals of the crown itself, though it would be hard to more distort the truth than to say that in gaining these lands the crown was simply taking unto itself its own. Of these were Gâtinais, Amiens, Vermandois, Valois, Aquitaine, Normandy, Anjou, Maine, Touraine, Toulouse, Blois, Chartres, Perche, Mâcon, Champagne,

Artois, Burgundy and Flanders. In time, indeed, Aquitaine, Flanders and Artois were relieved of their homage to France and thus, for a time, became foreign. Their absorption at last may be classed with the final acquisitions of France. These comprised, after some shiftings back and forth, Roussillon, that part of Navarre north of the Pyrénées, the kingdom of Burgundy or, rather, such parts of it as fell to France, Dauphiny, Provence, the three bishoprics, Alsace, Franche-Comté, Strassburg, Orange, Lorraine, Avignon and Venaissin. Bresse, Bugey, and Gex were obtained in exchange for Saluzzo. Britanny, which, before its incorporation, was more foreign than Britain itself, was a fief of the duchy of Normandy. Only the chief divisions have been considered in this list, which does not show the varying extent of the lands of the states and vassals absorbed, nor indicate how some French vassals were vassals to the King of France and a foreign sovereign alike. This much is clear, however, that the additions to France on the south and west may be roughly stated to have been French territory, ruled by French lords, vassals to the king. The acquisitions to the east of the Rhône, on the other hand, represent, on the whole, foreign dominions, which only became French after annexation. And the cathedrals which thickly dot this once rich and thriving land are more clearly and indisputably foreign than those elsewhere within the boundaries of France.

VIII.

The historical geography of France is not only in itself of interest in studying the cathedrals of that country, but it is of value in estimating the influence of French culture and ideas upon architecture, and especially upon cathedral building. There is no better way to impress upon the mind the cardinal reasons for the wide divergencies existing between the cathedrals in the different parts of France, than to briefly glance at the historical geography of the country. If the Romanesque cathedrals are found more frequently in the south than in the north, and in a better state of preservation, in that they have not been rebuilt in a later style, the explanation is to be found in the fact, not alone that the Romanesque was a style peculiar to the south, and the Gothic peculiar to the north, but that the lands of the south were cut off from those of the north by political as well as by geographical ties, and this at a time when the cathedral building spirit most filled the hearts and minds of the men of northern and central France. When these lands were finally absorbed by the crown the era of cathedral building had begun to pass away. Thus the Romanesque cathedrals of the south show more alterations and changes after the Gothic period than during it, where restoration or change has been needed, while in the north the lands which earlier came directly under the sovereign received new and larger churches in the new style we call Gothic.

The geographical limitations were much less keenly felt in the fiefs immediately adjoining the royal domain than in the distant fiefs of the south, or the foreign lands of the east and southeast. Thus the cathedral of Chartres, which is unquestionably a French cathedral, and a thoroughly French one at that, was mostly built prior to the absorption of the county by the crown. So also the Norman cathedral of Lisieux, partly built while Normandy was practically an independent duchy, exhibits characteristics closely similar to those of the royal domain, and this notwithstanding the fact that it received its final form after the annexation. Even more striking is the testimony supplied by the cathedrals of Britanny built during the thirteenth century, especially S. Pol-de-Léon and Quimper, which rightly pass as splendid and superb specimens of Gothic architecture; not perfectly so, as Mr. Moore defines it in his book on "The Character and Development of Gothic Architecture," but much more so than any cathedral in the south of France. This is the more remarkable from the geographical standpoint, since Britanny only fell to the French crown in 1532, though it may be considered as having

been partially French for some time previous.

It is hard for the modern mind, with the map of modern France before it, to realize the meanings of the historical geography of the country, or even to fully comprehend the significance of the feudal relationships it once exhibited. One is loath to admit, to quote an instance just cited, that so glorious a French monument as the cathedral of Chartres is not wholly French from beginning to end, albeit much of it is, yet the stern facts of history compel the admission. Even the wondrous fabric of Reims, the mightiest and grandest of mediæval churches, is not strictly French—not in the sense that Amiens, or Paris, or Bourges may rightly claim to be, for the archbishops and dukes of Reims maintained sufficient independence of the crown to coin their own money as late as the close of the fourteenth century. The distinction in this case, however, is scarcely a just or fair one, since, if the ecclesiastical lords of the city and adjacent territory retained a quasi-political independence, their position among the French peers brought them into close contact with the crown. The further fact that from their hands the successors of Clovis received the sacred oil, and that in their great cathedral the French kings were crowned—a ceremony which, in the seven hundred years elapsing since the crowning of Philip Augustus (1179), was omitted in the case of but three sovereigns, Henry IV., Napoleon I., and Louis XVIII.—thus giving it a national interest possessed by no other church, renders the distinction more arbitrary than real or even necessary.

The crowd of fiefs which filled the land we call France correspond to no political condition of the present day. Some, as Burgundy, Aquitaine, Toulouse, Flanders and Normandy, though historically Normandy scarcely belongs to this group, may be termed national fiefs, whose sovereigns maintained independent courts and usurped powers and functions which made their submission to the kingship more nominal than real. Others, as the counties of Anjou, Chartres and Champagne, were closely connected with the crown, and their counts were known as immediate tenants. Considered as a whole, the fiefs of the French king enjoyed rights and privileges which, in the modern conception of the state, were incompatible with organic union with it. These included, chiefly, the right of coining money, of waging private war, of exemption from public tribute save feudal aid, freedom from legislative control, and the exclusive exercise of original judicature in their dominions. Into the history of the absorption of these rights by the kingship we need not enter, but in attempting an historical classification of the French cathedrals it is well to keep these privileges in mind, since they help to show, as nothing else can, the importance of the relationship between the dates of the cathedrals and the dates of the absorption of the fief or city, as the case may be, into the domains of the crown.

In the light of historical geography, no cathedral of France is strictly French save those erected in the royal domain, or built after the province or fief had fallen to the crown. Many of the latter are buildings comparatively modern, or at least dating not earlier than the sixteenth century. And as the cathedral, in its truest and finest sense is essentially a building of the Middle Ages, these may, for the present at all events, be passed without notice. Such are the cathedrals of Alais, Annecy, Arras, Auch, Blois, Belley, Cambrai, Castres, Dax, Gap La Rochelle, Marseilles (new), Montauban, Montpelier, Nancy, Nice, Orléans, Pamiers, Rennes and Versailles; not all wholly modern cathedrals, it is true, but some wholly so, some largely rebuilt and added to, some completely changed in modern times. Another group which may be neglected at this time are those cathedrals, whether mediæval or modern, which only became cathedrals in the present century, and were, therefore, erected without thought of their present use. Such are the cathedrals of Agen, Dijon, Laval, Moulins, S. Claude, S. Denis, S. Dié, and the cathedral of the lower city, the Ville-Basse, of Carcassonne. Several others we shall find in the progress of

our survey were not originally built as cathedrals, but they were so changed or enlarged during their cathedral history, or have had episcopal rank for so long a time as to make their geography of some moment. But churches such as those just named, which have been chiefly created cathedrals within the memory of living men, form a group whose geography or history need not be now considered. Neither need we concern ourselves with the ruined or wholly destroyed cathedrals of Alet, Antibes, Avranches, Boulogne, Eauze, Mâcon, Maillezais, Riez (rebuilt in the present century), S. Servan (Aleth), Thérouanne.

The cathedrals wholly French, historically and geographically, when viewed in the strictest sense, form but a small fraction of the entire list. These include Albi, Amiens, Bayeux, Bourges, Clermont-Ferrand, Condom, Coutances, Entrevaux, Laon, Luçon (chiefly), Mende, Narbonne, Noyon, Paris, Rieux, Rouen, S Flour, Séez, Senlis, Sens, Toulouse, Vabres. Beauvais, and Reims should architecturally be grouped with Paris and Amiens, yet the semi-independent position of their ecclesiastical lords reduces them, strange as it may seem, to the mixed group. The links which bind these churches together are political; the architecture of the north had not, in the thirteenth century, penetrated to the south, and no two cathedrals could well be more different than those of Paris and of Albi. But all of them have a common political brotherhood possessed by no other churches in France.

The foreign cathedrals—those built prior to the complete absorption of the city or state by the crown—form a much larger list, though of very different architectural importance. These are the cathedrals of Agde, Aix, Arles, Autun, Avignon, Besançon, Bourg, Cahors, Cavaillon, Châlons-sur-Marne, Châlons-sur-Sâone, Chambéry, Digne (former), Dol, Elne, Embrun, Fréjus, Grasse, Le Puy, Lescar, Lodève, Lombez, Maguelone, Marseilles (old), Mirepoix, Moutiers, Nevers, Oloron, Orange, Périgueux, Quimper, S. Bertrand-de-Comminges, S. Brieuc, S. Jean-de-Maurienne, S. Malo, S. Omer, S. Paul-Trois-Châteaux, S. Pol-de-Léon, Sarlat, Senez, Sisteron, Tarbes, Toul, Tréguier, Tulle, Uzès, Vaison, Valence, Vence, It is not strictly accurate to speak of all these churches as foreign. The cathedrals Fréjus, Aix and Arles are not entirely so; Vaison has been much restored since it passed into French hands; Lescar has been much restored in the Renaissance style; but broadly speaking we are justified in designating them as foreign churches as distinguished from French. The cathedral of Angoulême, though practically rebuilt and restored in the sixteenth and seventeenth centuries, and again from 1856, should be added to the list, as well as the cathedral of Angers. The latter city, though nominally annexed to the crown in 1203 was only finally absorbed in 1475, after the cathedral had been substantially completed.

Many of the cathedrals of Guienne and Gascony, which were alternately in the hands of the French and English, are of a mixed nationality, which renders a classification on this basis well-nigh out of the question. Thus, though Touraine was confiscated by Philip Augustus in 1203, the city of Tours was not under the royal control until 1242, and its cathedral is, therefore, in some small part, partly English as well as French. The same condition exists in the cathedral of Poitiers, nominally French in 1203, actually so in 1453. Viviers also, to cite but a single further example, became part of the royal domain in 1307, though the fief was absorbed in 1270. Neglecting, therefore, for brevity's sake, any further consideration of the historical vicissitudes of the French cities and their cathedrals, we find many that should be classified as partly French and partly foreign, the latter term including, for present general purposes, lands actually obtained from foreign sovereigns and lands held in fief of the French crown. The list is a formidable one, including as it does, in addition to those just named, the cathedrals of Aire, Apt, Auxerre, Bayonne, Bazas, Béziers, Carcassonne, Carpentras, Chartres, Die, Digne (pres-

ent), Forcalquier, Grenoble, Langres, Lavaur, Le Mans, Lectoure, Limoges, Lisieux, Lyons, Meaux, Nantes, Nîmes, Perpignan, Rodez, Saintes, S. Lizier, S. Papoul, S. Pons-de-Thomiéres, Soissons, Toulon, Troyes, Vannes, Vienne, Verdun. Evreux, which finally fell to the crown in the sixteenth century, was largely built while attached to the royal domain between 1199 and 1305.

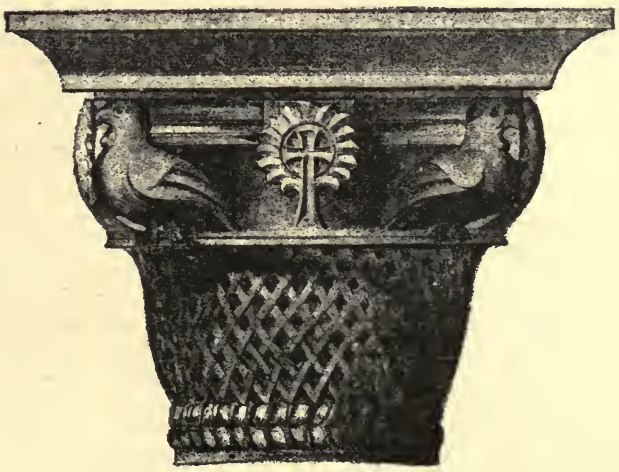
The cathedrals of France are spread over so wide an extent of territory, they were erected under such varying conditions, politically and ecclesiastically, that no single system of classification on an historical or geographical basis can be literally adhered to. That just proposed is, at its best, but a makeshift illustration of the geographical relations of the cathedrals to the sovereignty. In a certain sense it is misleading to speak of all these churches, as partly foreign and partly French, since the former element is, in many of them, of the utmost insignificance. Normandy, for example, was confiscated by Philip Augustus in 1203, and the beginnings of the cathedral of Rouen date no earlier than 1201 or 1202. But as it includes some parts of an earlier edifice it cannot, in the strictest historical sense, be termed a wholly French church. The county of Chartres, though obtained by purchase by S. Louis in 1233, was given by Philip the Fair to his brother Charles of Valois in 1346, and was only received again by the crown in 1528. In this case, however, in which the fief was given up to a prince of the blood royal, it can scarcely be said to have become foreign territory. And so if space were at hand to examine each church individually in the light of historical geography and its own chronology, many instances would be found in which the members of this mixed group would be more properly classed as French, since the more important parts of their fabrics were erected in times wholly and actually French.

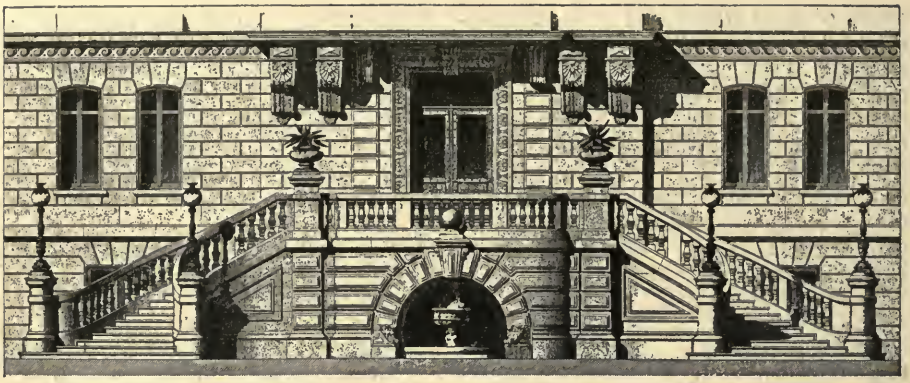
The geography of the French Cathedrals is important in any preliminary study in showing the very varied political and historical condition under which they were produced. These buildings, as do all other buildings, reflect the times and circumstances in which they were erected; there can be no greater error than to look at them as examples of architectural art without reference to co-ordinate events. Their meaning and importance only become clear when their whole environment is considered. It is this fact which gives value to the study of their geography. The historian and the geographer might take satisfaction in the classification given above, but the archæologist would find just cause for questioning it. Architecturally, French cathedrals are not those that have been named as erected directly under the crown, but those inspired by the true French spirit, of which Notre Dame at Paris is a notable example, and Amiens, Beauvais, Chartres and Reims further illustrations. These were, as has been said, really French cathedrals, and they are so without any reference to geography or history because their sources of inspiration were identical and their architectural forms akin. This French spirit was so strong that it passed the barriers of independent fiefs, especially those close to the royal domain, and, as time passed and the crown lands increased in extent, it spread throughout the greater part of France, diminishing in vigor with the distance and with the time, until the exhaustion of wars and the collapse of Gothic architecture extinguished it forever. It is not to be supposed that in the thirteenth century all parts of France were ready to receive and build in the new style, but there can be no doubt whatever but that the light furnished by the historical geography of the kingdom helps materially in explaining its practical limitation to the royal domain and the nearby fiefs.

In looking at our modern maps we are apt to forget, unless we open our history books, that Orange and Avignon, towns we would now describe by no other name than French, had no connection with the kingdom until the Revolution. While no fact in history is more readily ascertained than this it is much more difficult to understand the almost independent position of the feudal fiefs which once formed the larger part of French territory. A

piece of land which has been unquestionably French for five hundred years seems always to have been so, especially when its rulers appear to have held their holdings at the pleasure of the French sovereign. But there is nothing in feudal history to warrant such a conclusion, however natural it may seem to modern minds. The history of the epoch we are considering needs to be interpreted by the light of its own day, not by the light of the present. No one thinks of calling the cathedrals of Scotland and Ireland English, or even by the broader adjective of British. Yet the relations of both these lands to the mother country and government of England is closer and more intimate than that which existed between the county of Chartres and the kingship of France, or between the kingship and any of its feudal fiefs at the time when many so-called French cathedrals were building. It is not necessary to reject the partly French cathedrals, or those entirely foreign, from a history of the cathedrals of that country, nor shall they be rejected in the present narrative, but their historical geographical and political position should be thoroughly comprehended at the outset.

Barr Ferree.





AN ENTRANCE ON BOIS DE BOULOGNE, PARIS.

THE MODERN HOUSE IN PARIS.

FOR the past twenty years Paris has unceasingly grown larger and, in justification of the remark that has been made as to all large cities situated on the banks of a river, its development has taken place in the direction of the flow of the Seine, that is to say, down the stream, from East to West.

The Empire bequeathed to the Republic vast projects of improvement and many plans for quite a number of long thoroughfares to be opened up, both in the overcrowded districts and in outlying, sparsely-inhabited parts. The well-known Baron Haussmann was connected with the execution of these schemes, and he was followed for twenty years by his successor, Monsieur Alphand, to whom the City of Paris accorded, two years ago, a public funeral, the splendor of which bore testimony to her gratitude. The carrying out of so grand a programme made glad the hearts of building contractors and all those whose trades were connected with the construction of houses. It proved the truth of the popular saying, "Quand le bâtiment va, tout va" (When the building trade is good, everything prospers). Everything, in fact, did prosper; the almost instantaneous erection of new districts, principally comprised between the Champs-Élysées, the fortifications and the Bois de Boulogne, caused the walls which surrounded Paris to fall, so to speak, and pushed the city out to the country, while the increasing facilities of communication accustomed the Parisian, who loves the green sward as much as the wood pavement, to feel still *chez lui* or at home when outside those walls, where he formerly considered himself in a lost land.

To this is due, in a certain measure, a notable change in the habits of our citizens. On the one hand, numbers of well-to-do middle-class people who previously lived in apartments have come to desire a house in the suburbs, wherein, though small, they may have all to themselves—where the grass may belong to them, where, in short, they may be the owners. On the other hand, by reverse action, the happy possessors of substantial fortunes, members of the financial and commercial world, and even of the nobility, who had had, or could have had, a *hôtel* (private house or mansion), decided, owing to the dearness of building lots in the fashionable quarters, to live in apartments, with neighbors above and below, without, however, having any intercourse with them, except, of course, a polite greeting when they meet them on the common staircase. In this way, on the

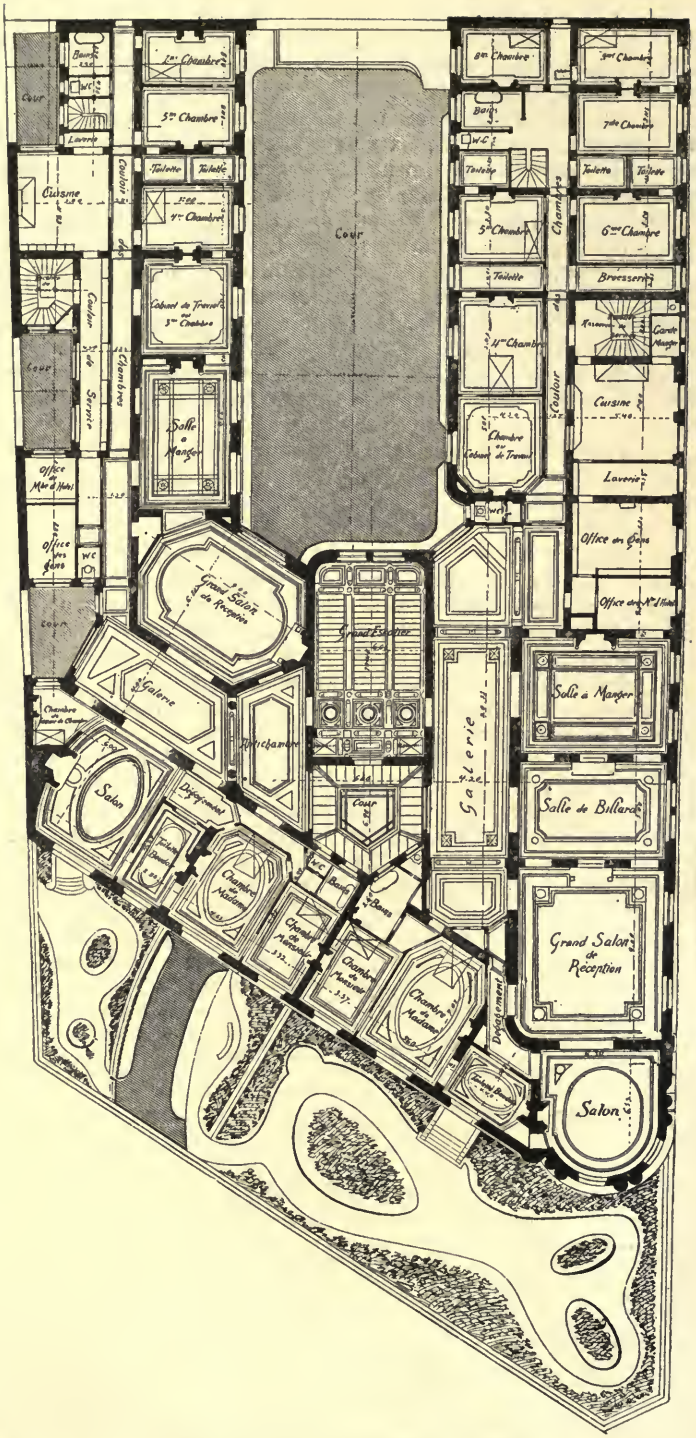
Avenue du Bois de Boulogne and in the Malsherbes, Franklin, Monceau, and François Ier districts, residential houses have been built wherein the apartments constitute veritable small mansions, one placed above the other. It is there that at the present time we meet with the real type of Parisian residence, combining every modern comfort and convenience, all the numerous arrangements to charm the sight and make life pleasant, to isolate each tenant from contact with those above and beneath, to separate him also from the family living alongside him on the same landing, to make him forget that in one of these horizontal slices of house superposed like a chest of drawers, he is not entirely *chez lui*, and, in a word, to produce as far as possible the illusion of being in his own house, while sparing him the burdens and cares incumbent upon a house-owner.

It is, therefore, from one of these new districts that I have selected the specimen that I consider best calculated to give a just idea to an American of the modern French residence, and in order not to be suspected of laying before the reader of THE ARCHITECTURAL RECORD something that has already grown old, I have not hesitated to choose a house still in course of construction. The exterior of this class of large building varies but little; consequently there is no objection to giving the elevation of another house which is only about one hundred yards distant from the first. This house, which is quite new, stands at the corner of the rue de la Pompe and the Avenue du Bois de Boulogne, while the one being built is at the corner of the same Avenue and the Rue Chalgrin. (See page 329.)

The latter building, of which we give the plan, belongs to the "Phénix," a large insurance company and a great builder of houses. Nothing has been neglected to make it the most perfect specimen of a modern residence. Two blocks of buildings, comprising two series of apartments, are contiguous to each other, but only communicate by a common staircase, while they are separated by an interior court-yard. We will examine the disposition of only one of them, that which forms an angle—the remarks as to the one being applicable to the other.

The building measures 25 metres in height, and has four floors in addition to the ground floor. After undergoing the scrutiny of the *concierge* (janitor), who no longer inhabits the traditional *loge*, but lives in a veritable small apartment, you find yourself in a vestibule ornamented with pillars, marble and mosaics, from which ascends a stone staircase 6 metres in width, flanked by two elevators. When you have rung the door bell and the footman has admitted you, you reach a hall, 21 metres long by 4¼ metres wide, lighted by two windows which look out on a large court-yard and another smaller one. In order to meet the desire now manifested everywhere that each tenant shall be isolated from his neighbor, and for that purpose to hide all view of him, these windows are furnished with stained glass, with polychrome designs on white glass ground, slightly tinted. This shuts out indiscreet glances, and gratifies the eye, while making curtains unnecessary. From this gallery or small hall, which is the central point, all parts of the apartment can be reached. Every dwelling, whatever it may be, consists of three entirely distinct parts, which rank according to their importance in the following order: first, the part reserved to the heads of the household and their family, and then the part devoted to the reception of friends and visitors, and lastly, that which comprises all the domestic offices. Let us examine each of them.

The most private chamber in all the dwelling, that which one loves to beautify for oneself alone, that which is the home of the home, is the bedroom. This, like the *cella* in the ancient temple, is the sanctuary in the modern temple. The profane never enter there. A Frenchwoman loves to be in her bedroom, and passes many hours daily there; therefore it is natural that it should be the most attractive position, and so we find that it occupies the principal place, fronting on the avenue and not on the street (*chambre de madame*). It measures seven metres in length by five in breadth, which insures a plentiful supply of air.



FLOOR PLAN OF APARTMENT HOUSE.

Avenue du Bois de Boulogne and Rue Chalgrin, Paris.

The chamber of Monsieur is near, as it should be. It is not so large as the preceding one, because gallantry demands, which also is as it should be, that it is he who must take the trouble to pay visits. Business keeps him away from home during the day, or if it retains him in the house a study is fitted up for him in another corner of the apartment beyond the living rooms. One bath-room (*Bains*) serves alike for the two heads of the house. A large dressing-room adjoins Madame's bedroom, for the toilet of a "Parisienne" is a momentous matter. It is there that Madame adorns herself or wards off, with the help of hair-dresser, pedicure, manicure and other charm-restorers, the onslaughts of time. In the last century ladies willingly let themselves be seen in the deshabille of their natural beauty or while engaged in their personal adornment; this was the fashion of the day in the same way as it was considered good form for people of quality to go to bed surrounded by a numerous company. In our day ladies do not care to risk such an ordeal. Fashion, however, seems to be returning to the habits of former times; visitors are no longer received during the toilet, but are admitted to the place where it has been performed, which is a refinement of suggestiveness. The *Toilette-Boudoir*, as we find it in the house of which we speak, is reserved for intimates; it is an elegant little room, which by its intermediate position between the closed bedroom and the drawing-room, which is open to all, well indicates the place occupied in the family's estimation by those whose privilege it is to be admitted there. It is for such persons a flattering distinction which predisposes them, according to their age and sex, to greater cordiality of manner, or, if so inclined, to indulge in a mild flirtation.

Only the initiated enter the boudoir, and Madame is always "at home" to them. The drawing-room (*salon*), which adjoins, is used for friends of the second degree, those who only call on days when Madame receives "officially." In the house in question the drawing-room is in the raised wing at the angle, and is of circular form, which has the evident advantage of being free from corners. It thus seems to make everything converge towards a certain point, namely, the mistress of the place. There she holds her social court, either once a week from 2 to 7, or perhaps daily from 5 to 7. Since the English mania has spread among us, 5 o'clock tea is quite the fashion, and daily receptions, at which the refreshing beverage is handed round, occupy in winter the hour which in summer is devoted to the invariable drive to the Bois de Boulogne.

But this drawing-room, in spite of its considerable dimensions, 6.55 metres by 6.30 metres, soon becomes too small when, to the friends one loves to bring together, are added the crowd of acquaintances whom it is useful now and then to receive, and who correspond to the third degree in the hostess's circle. To these a second drawing-room (*Grand Salon de Reception*) is allotted, larger than the first, and to which at ordinary times it serves as vestibule. At the end we find a billiard-room, and out of this we get to the dining-room (*Salle à Manger*). These three chambers look out upon the Rue Chalgrin. There was in fact no objection to their giving on to this secondary thoroughfare, as they are principally used in the evening, with artificial light. One opens into the other through folding-doors, which on reception days are taken down, forming a vista and a clear space of about 30 metres in length. The dining-room communicates on the one hand with the reception-rooms and on the other with the kitchen (*cuisine*), etc. The butler's pantry is next to the dining-room. It is here that the successor of the "Officier de la Bouche" of the ancient monarchy presides over the preparations of the meals. Here, in this calm retreat, under the orders of the mistress of the house and with the aid of the *chef*, he concocts his *menus*, forms his plans and prepares for his victories. It is here that, previous to the repast, he dresses those "chaud-froids," those pastries and the thousand fanciful creations of an art, which all

Europe, it is said, and I believe all America, envy us. Through one door he keeps an eye on the dining-room, through another he watches over the servants' hall, situated beyond, where the valet of Monsieur and the footman of Madame assist at dinner time in the many duties connected with the table. The servants' hall also serves as a dining-room for the domestics. Next comes the scullery, where the silver, glass and china are cleaned.

We now reach the kitchen, the cook's laboratory, in which the secret of sauces is kept as closely as certain brotherhoods keep the recipe of some specific cure for wounds. If history is to be believed, it is by means of her cooks, her dancers and her comedians that France has built up her reputation as much as by her artists and men of science. Consequently, it is not astonishing that in the Modern House the kitchen covers a space of 5.40 by 5 meters, as large as that of a drawing-room or of the mistress's bedroom. Around the walls, which are lined with glazed tiles, there are: a large fireplace with a turn-spit, a number of ranges, racks for the utensils, hot and cold water taps, a reservoir of filtered water, etc. A large table occupies the centre of the room. The floor is paved with marble in order to facilitate washing.

Although it is agreeable to have servants, it is not so pleasant to come into contact with them in the corridors. Therefore the architect has taken care to separate entirely the rest of the residents from the square portion devoted to the service. The kitchen, scullery and servants'. hall are only connected with the rest of the apartment by a small door within view of the butler's pantry. The servants have a staircase to themselves, and this staircase is provided with an elevator which brings up the provisions and lands them discreetly in the kitchen. By means of this isolation one of the great inconveniences inherent to life in an apartment is averted—an inconvenience which is avoided in private houses consisting of several floors, where the underground rooms and the garrets are devoted to the use of the domestics.

From the *galerie* of which we have spoken and which serves as entrance hall, a corridor runs, 22.85 metres long by 1.27 metres wide. It divides the building, abutting on the street, into two parts. Opening into this corridor, which runs behind the kitchen and offices, is a series of bedrooms, which complete the portion of the apartment occupied by the family. These bedrooms, seven in number, are all accompanied—except two rooms, one of which serves as a study for Monsieur, and the other as linen-room—by dressing-rooms supplied with hot and cold water pipes. A bath-room and a water-closet complete the installation.

If it is allowable to dwell upon this detail, we must confess that until about twenty years ago, water-closets were treated in many of our best houses without due regard to comfort and health. It was a necessity that people seemed unwilling to admit, and one that they neglected. In this connection, an abundance of water is indispensable; but the difficulty was not in bringing in the water, but rather in carrying it off, and the water soon filled the cess-pools, which the landlord was required to clear. The present system of "*tout à l'égout*," by abolishing fixed cess-pools, has made landlords less parsimonious of water and induced them to provide each closet with a good flow, which insures the constant cleanliness of the pipes and prevents unwholesome odors.

A hot-air heater, placed in the cellar and maintained at the landlord's expense, warms the staircase and each of the five apartments. This stove also supplies hot water for the dressing and bath-rooms at all seasons and at any hour of the day or night. The electric light illuminates the reception rooms, the hall, the bedrooms and the dining-room. In the offices, gas is used. All the bedrooms communicate with the offices by means of electric bells. A telephone connects the offices with the janitor's *loge*, whence also runs a letter elevator. Another telephone joins the office of Monsieur to the city telephone system.

Only a short time ago the Louis XV. style was in fashion, graceful, but somewhat irregular in form. There now



APARTMENT HOUSE.

Rue de la Pompe and Avenue du Bois de Boulogne, Paris.

appears to be a desire to revert to the Louis XIV. style, which is stiffer and presents straighter lines. The house we have in view is treated in the latter style, and we see an ingenious application of it in the main corridor, the sides of which are ornamented with mirrors, similar to the Grand Gallery of Versailles, in order to brighten what is necessarily a somewhat dark passage.

Stone is plentiful in France and is much used for house building in Paris. Stone has been in all ages, and is, whatever may be done, the material par excellence for any building combining elegance with solidity. But it is costly, and is, therefore, only employed for revetments. The party walls and interior wall-masses are of rubble or brick. The roof supports and floor beams are of iron. Wood, which suffers both from fire and damp, has everywhere been banished from all edifices of a durable character.

The heights of the floors are as follows:

Ground floor, ...	4	metres.	
First floor, ...	4	"	20c.
Second floor, ...	5	"	
Third floor, ...	4	"	
Fourth floor, ...	3	"	75c.

The top floor, the fifth, under the roof, contains the servants' bedrooms. The underground premises consist of large cellars, distributed among the different tenants.

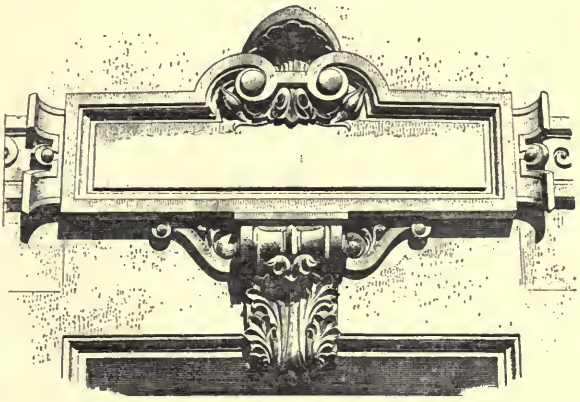
The rents, in the house we are speaking about, have not yet been decided upon. We know that they will vary between 18,000 and 30,000 francs. The only tax to be paid by the tenants is the door and window tax, at the rate of 2 per cent on the amount of the rent—that is to say, for an apartment rented at 30,000 francs an additional sum of 600 francs.

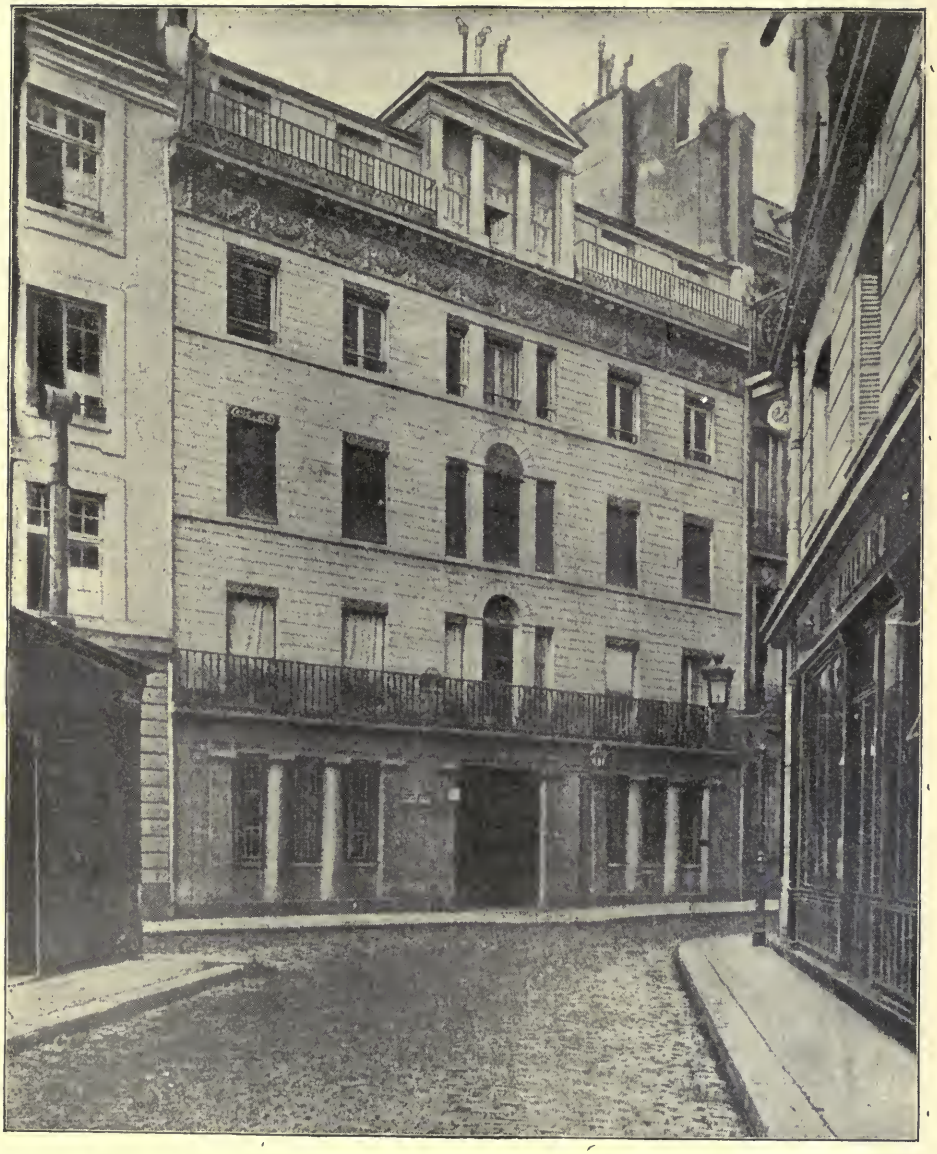
In a residence thus arranged, which, to sum up, comprises: ante-chamber, hall, three drawing-rooms, billiard-room, dining-room, nine bedrooms, six dressing-rooms, two bath-rooms, four water-closets, two servants' rooms, kitchen, larder, brush-room, scullery, servants' rooms, hot-air stove, elevators, letter elevator, gas, electric light and bells, hot and cold water, filtered water and telephone, a man can take life easily and be happy. All this comfort, the work of modern industry and science, ameliorates his home life, while the electric current, the telephone and even the theatrophone can in case of need connect him with the outside world without compelling him to leave his home. But every citizen cannot afford to pay from 18,000 to 30,000 francs a year for rent, and therefore the house that we have taken as a typical residence for people with well-lined purses is in truth reserved for the richest of the moneyed class. But this example is nevertheless a good one, as it is also a type of much cheaper residences. Reduce the number of bedrooms to three or four, and the drawing-rooms and bath-rooms to one; make the entrance hall a simple ante-chamber; abolish the billiard-room; of all the offices leave only the kitchen: take away the gilded paneling, the marble, the mosaics, and the stained glass; and you will have an apartment at a tenth of the rent, about 3,000 francs.

We must not omit to refer to a recent attempt made in one of our finest quarters, the Avenue Hoche. On the ground floor of a large house, occupying the space between the cellars and the first floor, a large hall has been fitted up which each tenant in the house has in turn at his disposal several times a month, and where evening parties, dinners, or balls can be given. Adjoining this hall, which is reached by a spiral stone staircase, there are a kitchen, servants'-room, waiting-room and cloak-room. This is a happy idea, but it is as yet too early to say whether it will prove successful. On the occasion of a ball or a wedding the tenant who is obliged to seek one of the first-rate hotels in order to find accommodation for a numerous assembly, will certainly be pleased to have under his own roof a room large enough to contain all his guests; but these events are unusual, and the hostess will always prefer to receive her friends in her own home rather than in a place which is equally at the disposal of her neighbors, a place where she would be in her house but not at home, and which next day might be occupied by another

tenant. This hall, however brilliant, will still be characterless in its decoration, whereas we know that if a lady is fond of entertaining, it is in order to experience the pleasure of having her friends in her home, amid her own surroundings. The proverb says: "Dis-moi qui tu hantes, je te dirai qui tu es" (Tell me where you frequent and I will tell you who you are). It might be said: "Tell me how your house is furnished and I will tell you who you are." A salon used collectively can never have anything distinctive about it, and a hostess would derive no satisfaction from it. It would give her no pleasure to beautify it, for she would receive no inward gratification therefrom, nor would her amour-propre be flattered by success. People would say: "Madame X has given us a splendid fête," which might be said of anybody; but not: "How charmingly Madame X entertains—what taste she displays in furnishing and in selecting her household treasures." This would be praise indeed, as the compliment applies to the hostess, not to the upholsterer.

Paul Frantz Marcou.





BENJAMIN FRANKLIN'S HOUSE.

Rue Penthievre, Paris.

Built about 1780 and now standing.

ARCHITECTURAL ABERRATIONS.*

No. 6.—THE GOVERNMENT AND THE WORLD'S FAIR.

THERE has never been presented so impressive an object-lesson in the methods, or want of method, employed by the Government of the United States in erecting buildings for its own use, as that which is now on view in the grounds of the World's Fair. For, the Government building, which is an illustration of our official methods for procuring architecture, is there seen in comparison with the best that has been attained in our unofficial architecture. It is since the war that the private building of the country has made its greatest advance, and indeed in the latter half of the period that has elapsed since the war. In two departments, in commercial and in domestic architecture, the advance has been such that we have ceased to be pupils and imitators and have become to a very considerable extent teachers and exemplars in these departments for older countries. This is because our exigencies have been new, and in the presence of a new problem an American architect is less trammeled by precedent than the architects of Europe. Unless he be an educated architect who knows what the precedents are, he cannot disregard them to advantage, for his disregard will be mere ignorance. But if he be an educated architect, his advantage is very great, and he has used it so well that in "elevator architecture," which is destined to an increasing importance everywhere, European architects must come here to learn.

While this advance has been going on in the private building of the country, the government architecture has been experiencing, not merely a stagnation, but an actual retrogression. Before the war the government really furnished models for the building of the country, and for the architecture of States and municipalities. It undoubtedly represented the highest plane of our professional attainment. The colonial building was always decorous and gentlemanlike, and was often entitled to a higher praise. The first capitol of the United States was an admirable, and perhaps upon the whole the best example of colonial architecture. When the Greek revival invaded the country, and the Anglicized Roman monuments of an earlier day were displaced by the reproductions of the primitive types, it was again the government that led the way; and in the buildings of the departments at Washington and in the extension of the capitol it furnished not only the most expensive and extensive, but the most learned and taste-

* We are making a collection of "Aberrations," and shall present one to our readers in each number of THE ARCHITECTURAL RECORD.



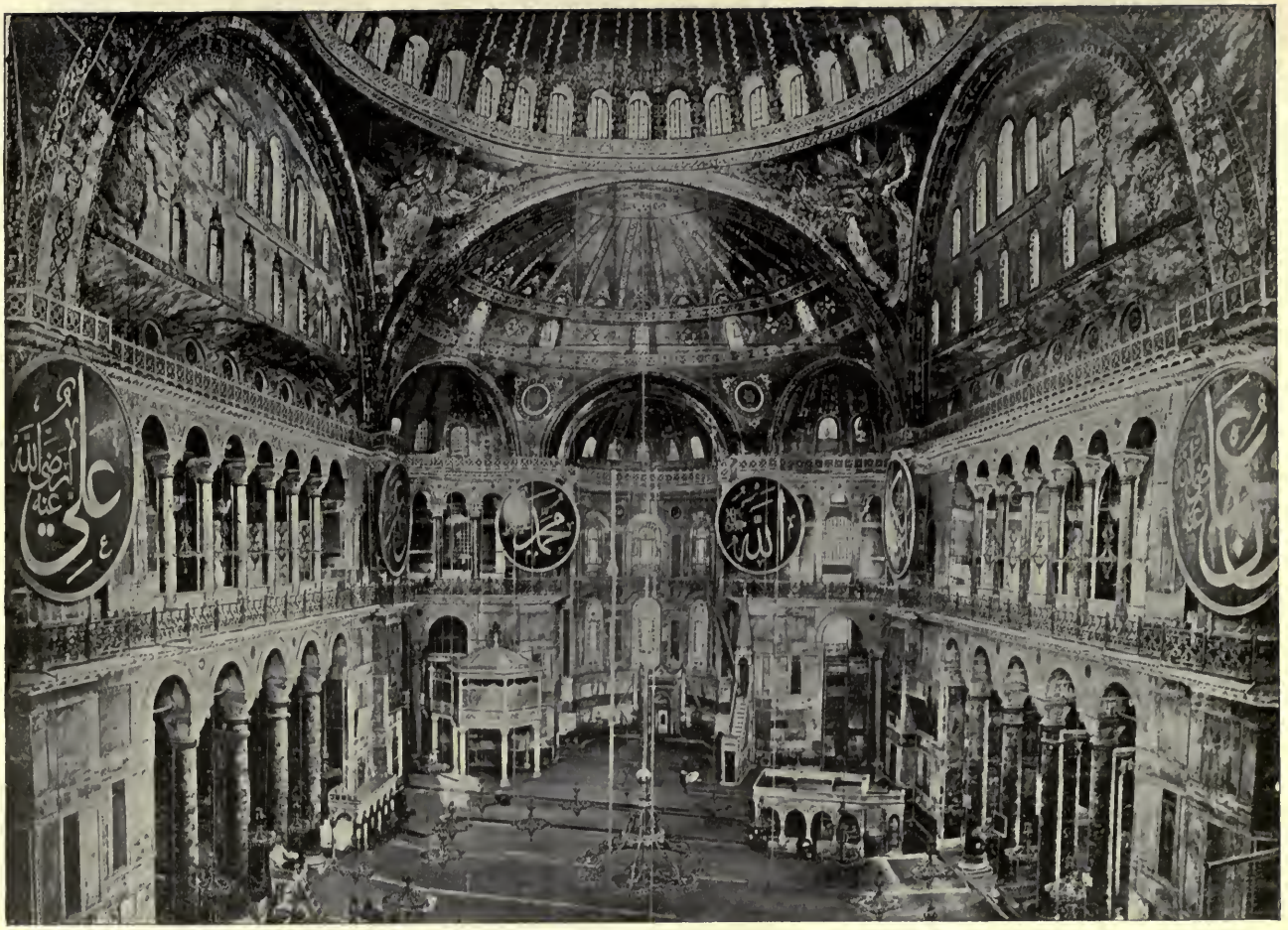
THE GOVERNMENT BUILDING, WORLD'S FAIR, CHICAGO.

ful of the monuments of the newer mode. Meanwhile, except at the very beginning, when public men knew rather more about these things than the average of private citizens, the government itself was by no means to be credited with the superiority of the public buildings over the average of the private buildings of the country. A few instructed men had gained this advantage for it without any aid from the politicians, but also without any obstruction. But it was not very long after such an office as that of the "Supervising Architect of the Treasury" came to be established, although it was neither a very dignified nor a very lucrative office, that the standard of public building began to fall below the highest standard of private building. The gap has continued to widen until now, on the one hand by the advance in unofficial architecture, on the other hand by the degradation of official architecture, in spite of one or two eddies in the latter process, when the Supervising Architect happened, in spite of the chances to the contrary, to be an accomplished and artistic practitioner. But these exceptions had no effect in establishing traditions in the office. The tenure of the incumbent has been precarious and, on an average, singularly short, even for a political office-holder, and the ambition of most of the newcomers has been to do something distinctively different from their predecessors. When we consider the enormous amount of work in the way of design that is thrown upon the Supervising Architect, in addition to an enormous amount of work in the way of administration, it is evident that the designs, if they proceed from his personal inspiration, cannot be studied and that the architectural result cannot be successful. About thirty years ago there was a recognized government pattern of Federal building, and the post-offices of towns a thousand miles apart, erected at that time, are readily recognizable as emanations from the same mind. Unfortunately the pattern was not a good one, but we might hope for better results than we have attained if a competent architect had devoted himself to working out the details of a single typical building and erecting this design with only such modifications as were practically necessary in different cases. However that may be, the government has been by far the most extensive builder in the country, and there is not a single building erected for it since the war to which any instructed American can point with pride, or that either reflects or contributes to the great advance that has been made within that period in American architecture.

Certainly it is with a sentiment as far as possible from pride that such an American must contemplate the building which is supposed to typify the dignity of the American government at Chicago. Here for the first time the work of the foremost of our unofficial architects is brought into direct competition with the work of the official factory of architecture, and the private work is as creditable to the country as the official work is disgraceful. On the one hand is embodied the result of an advance, and on the other of a retrogression. For no intelligent observer can fail to see that the government building is of an architecture so bad that it would not have been tolerated forty or fifty or sixty years ago. While in all the other great buildings with which in magnitude and costliness this one is to be compared, there is evidence everywhere, from the arrangement and proportioning of the masses to the design and adjustment of the last detail, of a careful, intelligent and affectionate handling, the Government building is a rude and crude and ignorant compilation of features that are not good in themselves, and upon the relations of which no pains whatever appear to have been spent. The designer had every extrinsic advantage. His building is monumental in magnitude, measuring 345 by 415 feet in area and 236 feet in height to the top of the dome of which the diameter is 120 feet. These latter dimensions are not much short of those of the dome of the Administration building, which really makes its effect, while the dome of the Government building is absolutely ineffective. The cost of the Government building is

$400,000, which is considerably greater in proportion to area than the cost of such beautiful buildings as those devoted to Fisheries, Agriculture and Fine Arts. It is indeed an ample sum, considering that the construction is of lath and plaster, and that what the architect is required to do, after meeting the practical demands of the building, is to produce an impressive and spectacular piece of stage-setting, in criticising which it would be merely pedantic to insist upon the expressiveness and actuality that we have a right to require of the architects of buildings intended to be permanent. Here, as in stage-setting, illusion is what is aimed at. To give a look of antiquity and durability to what is brand new and evanescent is here a legitimate triumph. This is what the architects of the Columbian Exposition have done with more or less success; all of them with a creditable, some of them with brilliant success. And the discordant note in the harmony is that sounded by the Government of the United States.

It is evident in illustrations of the other buildings that the designer has chosen some dimension of his building for architectural emphasis and architectural development, and that he has done this by skilfully subordinating the other dimensions, while introducing such features as without veiling his main purpose, should enable him to carry it out without producing monotony. In the Arts building, the Agricultural building, the Manufactures building and Machinery Hall, it is length that has been chosen, length punctuated rather than interrupted by fortifying or relieving features. In the Administration building it is the height, insomuch that the building itself is with much art reduced to a mere and effective pedestal to the soaring dome. But in the Government building there is no trace of such a purpose or of any general purpose. The dome is too lofty to be the mere crown of a spreading building, while it does not itself command and concentrate the attention. The actual length is great enough to make an imposing effect, if it were only developed. But it is one thing to develop a front and quite another to "devil-it-up." This front is distinctly not developed, and is as distinctly devilled up. The flat and shallow arcade of four openings on each side is the only suggestion of a desire to make the most of the length. It is rudely interrupted at the corners by pavilions that are subdivided into three and at the centre by a huge arch flanked by pavilions that are again flanked by lesser pavilions. By these devices the length is annihilated and the motive that might have been derived from it abandoned while nothing is put in its place. So far as the designer had a motive, it seems to have been to accumulate in his front the greatest possible number of features. Such a motive necessarily brings about an aspect of uneasiness and restlessness and is fatal to that repose that is among the most essential of architectural qualities, and that the buildings at the World's Fair that do us honor possess in an eminent degree. A building of so many features would be distressingly busy, even if the features were all good in themselves. But here none of the features is good, and that is where a photograph fails to do the building the justice it requires. The crudeness and lifelessness and gracelessness of the detail are even more marked than the infelicity of the massing and the defect of a general design. The architectural and the sculptural detail alike are such that it seems out of the question they could have interested the man who made them, much less anybody else, and the enormity of the result cannot be appreciated, except by a view of the actual structure in its surroundings. There is a bill now pending before the Senate, having already passed the House, opening the design of public buildings to competition by private practitioners. If there be any doubt in the minds of the Senators as to the propriety of passing that measure, the doubt would be dissipated by a pilgrimage to Chicago, and by the comparison there found between the condition of official and the condition of unofficial architecture in these United States.



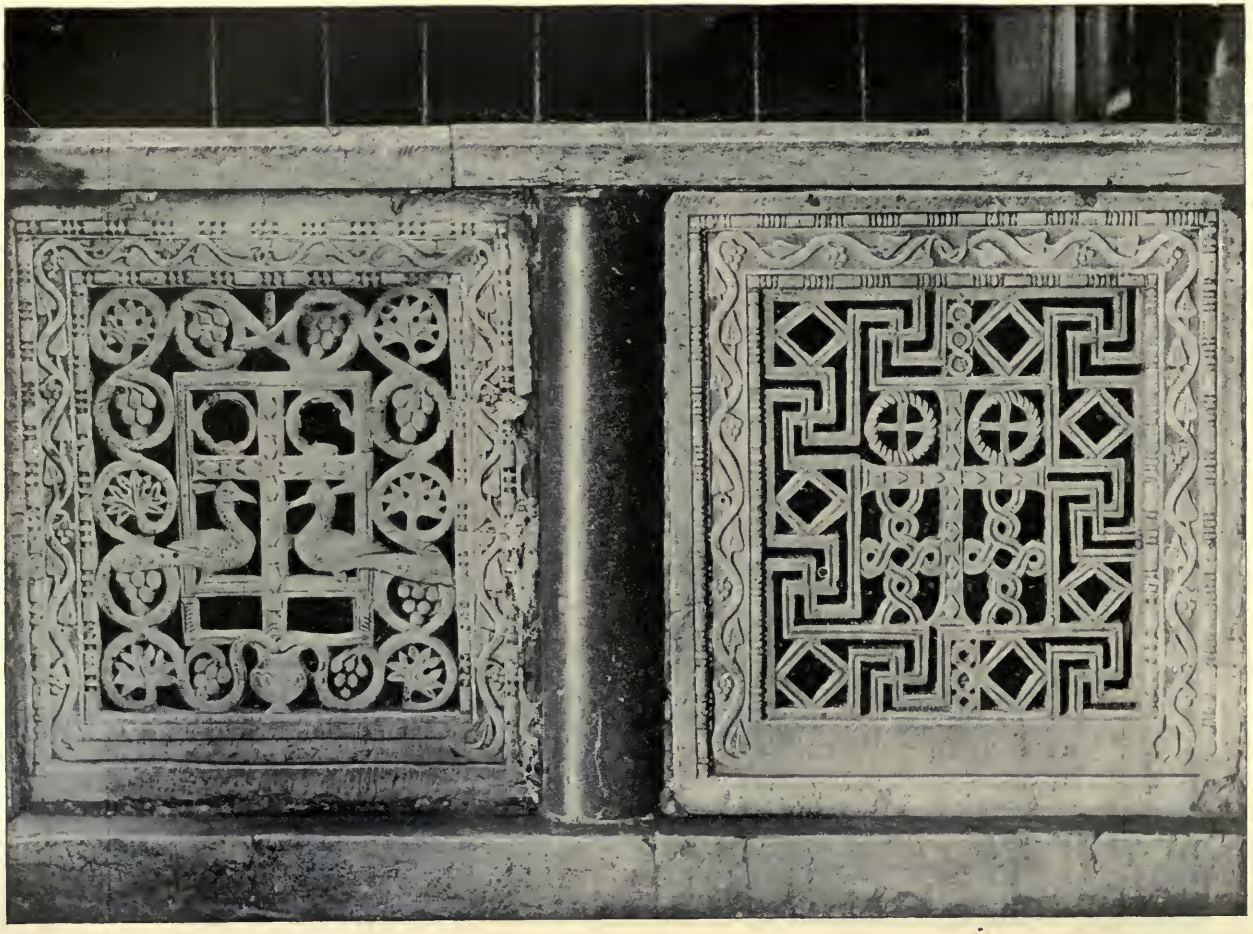
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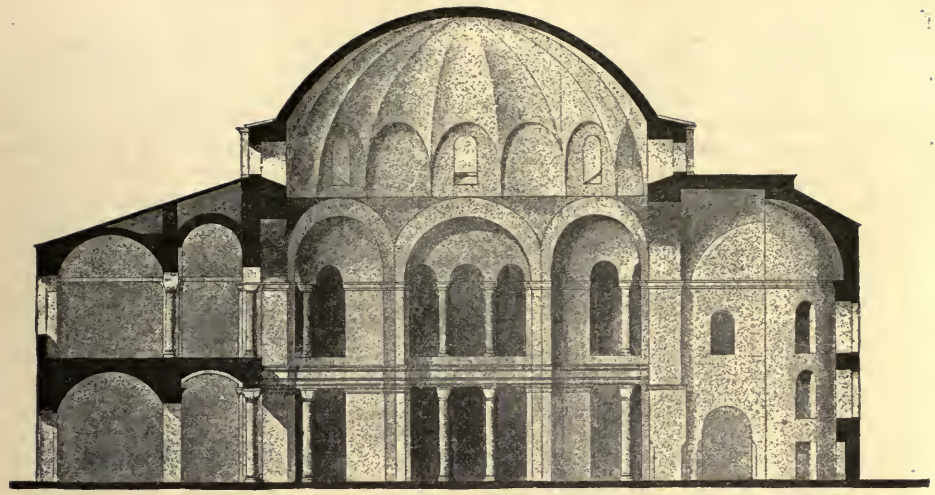
BYZANTINE CAPITAL.—S. VITALE.



BYZANTINE CAPITAL.—S. VITALE.



CARVING IN S. APOLLINARE NUOVO.



Byzantine Architecture.

Part IV.—BYZANTINE DECORATION.



When Constantine the Great made Byzantium the capital of the Empire, Roman buildings were reproduced as well as they could be in a foreign town, and the decoration of them was that which was prevalent at Rome. We are too apt to think of Rome as a mud-built city with a few temples and public buildings of terra cotta or stone, and the Romans as the simple and severe people of the early days of the Republic, when the great Generals lived in small farm houses, wore a white toga, and tilled their land with their own hands. Just before the Punic wars (264-146 B.C.) there was but one service of public plate which was lent to each Senator when he entertained foreign Ambassadors. You may recollect the remark of the Carthaginian Ambassador "that the Romans were the most good-natured people in the world, for though he had dined with each Senator separately he always saw the same service of plate." The influx of wealth, and the acquaintance with the magnificence and luxury of Greece, and of Oriental despots, very rapidly introduced the customs of Greece, Persia and Egypt into Rome. Marble, which was at first looked on as a scandalous luxury for a private person, soon became the favorite lining of walls, though, so late as the first century B.C., M. Brutus called Crassus the "Palatine Venus" for having six columns of Hymettian marble in his house.

Sulla is said to have been the introducer of mosaic pavement, between 88 and 78 B.C., though his son-in-law, Scaurus, had before that date used glass for one of the stories of his temporary theatre. Personal adornment kept pace with the magnificence of houses, for Julius Cæsar had his shoes enriched with engraved gems! We know of the costly citron-wood tables of Cicero, and the gold and ivory ceilings of Horace's time. In the days of Augustus an edict had to be promulgated to restrict Senators to the use of the white toga on festal days. Seneca thundered against the luxuriousness of the baths, with their costly marble walls, their floors of gems and their

fittings of silver. Pliny, who died 79 A.D., wrote his diatribes against veneering walls with marble, and he tells us that mosaic had deserted the floors for the ceilings of rooms. Stained glass must, I think, have given additional splendor to buildings at an early period of the Empire. Even in Pliny's days costliness was more admired than art, so that in magnificence and splendor the Byzantines could not exceed, but could only rival the Romans. Rome has been stripped so bare that we might fancy it to have been a plain city, but for written descriptions. There was, however, an invention that must have rendered the splendor of gold and silver much less costly, and, therefore, much more common at Constantinople, I mean the invention of gold and silver mosaic; the absolute date of its invention is, I believe, unknown. I may say that I did not find a single cube of it at Hadrian's Villa, nor in Caracalla's Baths, and these baths were not built till the third century. It is probable that gold and silver mosaic preceded those medallions, in which an etching on gold leaf is preserved between two sheets of glass; these medallions, having portraits or symbols etched on them, bear evidence of their being of Christian times, so antiquarians believe them to be no earlier than the end of the third, or the beginning of the fourth, century. Specimens of the glass medallions may be seen in our national collections. Gold and silver mosaic is believed to have been used in Constantine's days, but I know not on what ground; the finding them in buildings of his day is no proof, unless it be confirmed by documentary evidence, and there is little or no evidence of the buildings in which they are found being of his time. There is a mosaic portrait of Flavius Julius Julianus in the Chigi Library that has several cubes of gold mosaic in the dress. It was found in the catacombs of St. Cyriaca in the Tiburtina, in 1656, and is believed to be of the second half of the fourth century; but there is nothing to prove that the gold mosaic cubes were not of a subsequent date. The passion for using metals, and particularly the precious ones, for decoration, seems to be inherent in man, and only to be interrupted when men or nations are wealthy, at periods of the highest cultivation. In the Bronze age, we read of the metal palace of Alcinous: "Meanwhile Odysseus went to the famous palace of Alcinous, and his heart was full of many thoughts as he stood there or ever he had reached the threshold of bronze. For there was a gleam as it were of sun or moon through the high-roofed hall of the great-hearted Alcinous. Brazen were the walls which ran this way and that from the threshold to the inmost chamber, and round them was a frieze of blue, and golden were the doors that closed in the good house. Silver were the door-posts that were set on the brazen threshold, and silver the lintel thereupon, and the hook of the door was of gold. And on either side stood golden hounds and silver, which Hephæstus wrought by his cunning, to guard the palace of great-hearted Alcinous, being free from death and age all their days. . . . Yea, and there were youths fashioned in gold, standing on firm set bases, with flaming torches in their hands, giving light through the night to the feasters in the palace" (the Odyssey of Homer, Lib. 7, lines 80 to 102, by Butcher and Lang. 8vo. London. 1887.)

It is not very clear whether the whole of the inside of Solomon's Temple was covered with gold, or only the oracle (I Kings, cap. 6, v. 20, 21, 22); but Polybius tells us that the palace at Ecbatana was covered with gold and silver (Lib. 10, cap. 27). "For all its woodwork being cedar or cypress not a single plank was left uncovered; beams and fretwork in the ceilings, and columns in the arcades and peristyle, were overlaid with plates of silver or gold, while all the tiles were of silver."

Suetonius tells us that Nero's Golden House had some parts overlaid with gold, and adorned with jewels and mother-o'-pearl. "The supper-rooms were vaulted, and compartments of the ceilings, inlaid with ivory, were made to revolve and scatter flowers" (Suet. "Nero," cap. 31). Constantine Porphyrogenitus tells us that his grandfather, Basil the Mace-

donian (867-886), built an oratory to the Saviour close to his apartment (Cenourgion) in the Sacred Palace, and says:—"The magnificence and splendor of this oratory are incredible to those who have not seen it, so great is the quantity of gold, of silver, of precious stones and pearls which are found amassed in its inclosure. The pavement is wholly of massive silver, worked with the hammer and enriched with nielli. The walls to the right and left are also covered with thick plates of silver damascened with gold, and heightened by the brilliancy of precious stones and pearls. As to the screen which closes the sanctuary in this house of God, what riches does it not combine! The columns are of silver, as well as the plinth that carries them. The architrave which rests on their capitals is of pure gold, loaded in every part with those riches which the whole of India can offer. One sees there, in many places, the image of our Lord, the God-man, executed in enamel. Language refuses its office to describe the splendid decorations of the sanctuary, and the sacred vases which it contains, as a place especially appropriated to the keeping of the treasures, and desires to leave them as things which nothing can approach; for, since speech can only remain below the subject, it is better to be silent. Behold, then, if I may say so, these Oriental beauties, which have gushed out from the bosom of the living faith of the illustrious Emperor Basil on to the works raised by his hands in the Imperial residence."

I have no doubt that the palaces built of gold and silver bricks, and covered with jewels, described in the Arabian Nights, were suggested by some of the splendid rooms or oratories of the Byzantine emperors. The means of decoration being metal, marble, sculpture, mosaic, and painting, I will now take the carving and marble. There was in the Early Christian Church a marked aversion to the use of figure sculpture in whole relief, and to statuary in churches, on account of the pagan idols being mostly in that form, but bas-relief did not seem to have been so much objected to. At first, too, there was an inclination to represent the Founder of the Faith by means of symbols, such as the lamb or the fish; but remains of angels carved in relief are found at Qalb-Louzeh, and there are figures in the caps of the columns of the narthex at "The Monastery - in - the - Country." Generally speaking, capitals of columns are carved with floral ornament only, except in the case of old Pagan caps, on which there are animals. The Mussulmans seem also to have had an aversion to figures in sacred buildings, as conducive to idolatry, so what with the original objection to figures by the Christians, the fury of the Iconoclasts and the puritanism of the Mussulmans, little figure sculpture is found in the Eastern Churches. This must have been a severe trial to the sculptors who had turned Christian, and who were surrounded by the masterpieces of ancient sculpture and statuary, though Constantine had all the fountains he built carved with these two subjects, viz., "Daniel in the lion's den," and "The Good Shepherd." Sculpture for secular purposes was still used in Justinian's time, for Procopius tells us that the sculptors and statuaries of Justinian's days produced such excellent statues that they might be taken for the work of "Phidias, the Athenian, of Lysippus of Sicyon, or of Praxiteles." He tells us of the bronze equestrian statue of Justinian in the Augusteum, and one of the Empress Theodora, in the court of the baths of Arcadius; he says:—"The face of the statue of Theodora is beautiful, but falls short of the beauty of the Empress, since it is utterly impossible for any mere human workman to express her loveliness, or to imitate it in a statue." I presume the sculptors eventually turned ivory carvers, for in this material figures do not appear to have been objected to. The capitals of the columns, when not pillaged from ancient buildings, generally affected the cubic form, like those of Constantine's cistern, called the Thousand and One Columns, or that of the plan of a Corinthian cap, with a convex instead of a concave outline; the whole capital was generally covered with fine pierced floral ornament.

There was a great inclination, even in late Roman days, to make all floral sculpture like filigree work.

A few well-known examples of capitals are exhibited. The plan of decoration was, as I have said, practically the same as the later decoration of Rome; the columns were of choice marble monoliths, with carved capitals; the walls were lined with thin slabs of various colored marbles, mostly arranged in panels with borders. Sometimes the borders, and sometimes the panels, were carved with flat carving; and sometimes the borders, and sometimes the panels, were of inlaid marbles, now called "pietra dura." There were carved cornices, strings, door, and window heads, while the vaults, arches and domes were covered with mosaic. The marble linings have been stripped from the walls of Roman buildings, and it is only here and there that we find a bit of marble in an angle, held on by a clamp, or by the floor mosaic. Monolithic shafts, and their carved caps we still find; we also find floor mosaics, on account of their being covered by the rubbish when buildings were pulled down, or fell down after they were abandoned; of glass mosaic we find nothing but the cubes amongst the rubbish, excepting a few coarse rustic works like the faces of fountains at Pompeii. But Rome had been stripped when the capital was changed to Constantinople, and again when paganism had been abolished; it had been perpetually overrun by hordes of savages, and it has also suffered at the hands of the builders, after the revival of learning. I mention this because we have now no means of comparing the arrangement of the marbles on the walls of Byzantine churches with those of Roman buildings. The church of St. Demetrius, at Thessalonica, is a two-storied arcaded basilica, with clerestory windows above, and is covered with a timber roof. The nave between the bema and the narthex is divided into three compartments by piers, and between the piers there are, in the middle bays, four columns of verde antique, and three columns of other marbles in the two other bays. Some of the columns have old caps, too small for the shafts, and some caps are Byzantine; there are also two verde antique columns to the narthex. Each verde antique column in the centre compartments of the nave stands on a short pedestal about two feet high, showing that the shafts had come from older buildings; they have classic bases, but the shafts themselves have the wide fillet under the apophyge, which is characteristic of Byzantine shafts. None of the other columns have pedestals. Above each capital is a block, apparently the survival of the entablature; some of these blocks are carved, and some have only a cross. The lower arcade has Corinthian or composite caps, and the upper arcade Ionic ones; between the columns of the nave was once a solid moulded balustrade, many pieces of which are now used as paving, and there is also one side of an ambo, now used for the same purpose; a similar balustrade to the upper arcade still remains. The whole surface of the walls is covered with slabs of marble.

Under the bases of the upper arcade, a cornice is represented in pietra dura. Beginning at the top there is a green strip between two white ones; below that is a strip of red marble for the corona; below this, plain square cantilevers are represented in perspective, capped with a bead and reel, and a dentil band; the soffits of the cantilevers are red, with a white side and end, the latter has a black panel in it; between the dentils, and for the soffit of the corona, red marble is used, and black for the cantilever band, with a white star in the centre of each space; in the middle of each pier the cantilever is turned the reverse way, and the square piece between the sides is filled in with black, with a white star, and the spandrel piece at top is also black with a white honeysuckle. Below the cantilever band is a white band, and below that is a red one, which completes the cornice. In the spandrels of each of the arcades, below the cornice, there is a square panel, whose bottom touches the extrados of the arches, inlaid with colored marble in geometric patterns. The whole church inside has a distinguished air.

At Sta. Sophia, Constantinople, there is a broad band of verde antique above the skirting; above this are four bands of light marble dividing the height into short spaces at the top and bottom, and a longer one in the middle. Above the cornice is a band of verde antique, and then one band of lighter marble divides the spaces into a long lower, and a shorter upper division, above which comes the pietra dura work. In the lower part, the centre panels have stiles and rails; these are first marked out by projecting slips of white marble, with the Venetian dog tooth on the face, and the stiles and rails are carved, the panels being of porphyry, verde antique, or some other precious or effective marble. The same thing occurs in the lower panels of the first floor, only the stiles and rails are not carved; in the upper and lower panels of the ground-floor, and in the upper panels of the first, the panels are only separated from the ground by one line of white marble, with the Venetian dog-tooth going all round them: some are filled with strongly-veined marbles, placed so as to form vertical squares in the middle, with zig-zag sides, and some have horizontal zig-zags. The variety of precious marbles used is quite extraordinary; they are all mentioned in the poem of Paul the Silentiary. As I said before, the sea air and the dust have given a uniform dusky color to most of the marble, like that I spoke of from Salonica, though the white, the purple porphyry, and the verde antique still show their color distinctly. There is an effect of subdued magnificence about the marble work, but I have no doubt the effect would be better if the marble work was repolished, provided that there is no streaked rosso-antico; this has wide streaks of the color of a raw steak, with livid white between: as a rule each block is cut into four slabs, and so put together that the four diagonal streaks make a symmetrical panel. Some years ago I saw parts of San Vitale that had lately been repaired with streaked rosso-antico newly polished, and the effect was glaring and ghastly.

At Constantinople, the Kalendar mosque, and the church of the monastery in the country, have their walls treated in the same manner, only at the Kalendar mosque much of the marble is replaced by coarsely-painted imitations; at both these churches there is some lovely Byzantine acanthus, carved in white marble, and pierced right through—some of the loveliest work I have ever seen. The difference between these two churches is this: one now looks magnificent and the other looks as if it had once been so. There is a veined marble screen in the southern gallery of St. Sophia, supposed to have formed the Imperial pew for the Empress Theodora, her maids of honor, and perhaps her court, but, as far as I understand, it was on certain occasions used by the Emperor, who afterwards descended by the wooden staircase, and I do not know if Theodora sat with him. We know that the coronation took place in the ambo, and that the Emperor had a seat in the solea, the vast E. hemicycle, and in the bema as well.

The screen now consists of two imitation doors, in two leaves of veined marble, with a wooden door between them. Each pair of marble doors has an architrave round it; the two leaves are shut against a narrow pilaster, enriched with ornament, with a capital and base. Each leaf has five panels in height. Two panels out of the five have large plain bolection mouldings, and no ornament except a bead and reel, and the three others have the bolection mouldings enriched with the *raie du cœur*. The stiles and rails are moulded, and stopped at the centre of each panel both ways, and in the blank space between the stopped ends are bosses, except opposite the middle of the third panel in the shutting stile, where the rings for opening the doors are carved. The screen is capped by a square ornamented band. On one side the Imperial eagle remains. The late W. Burges used to be emphatic on the importance of this screen, as showing what wooden doors were like in Justinian's time and for some time before and after. Also interesting are the two leaves of a door, now used as jamb linings, at *Μονή τῆς χώρας* which are much more effective than

the doors before described, but of similar treatment, except that the panels were once sculptured with figures, which have been chipped off. There are the remains of the carved rings which were evidently in lions' mouths. In this church was once a portrait of the Virgin, attributed to St. Luke, and these doors might have inclosed it. The holy robe of the Virgin was alternately kept here and at the church called Hodegetria, and these doors may have closed in the cupboard where it was kept.

It is hardly necessary to speak of "pietra dura," as it is so well known; it is merely inlaying one marble with another, so that beyond the excellence of workmanship, there is nothing but the design and the harmony of color to speak of. That at Sta. Sophia is admirable, and consists mainly of black and white, enlivened by pieces of green and red porphyry here and there. "Pietra dura" might now be used with great effect in sumptuous modern buildings, especially when near the eye.

Mosaic is believed to have taken its origin from floors or paths being paved with little pebbles of different colors, and this sort of mosaic might be very effectively used now. Hamdy Bey, the director of the Imperial Museum, and the discoverer of the magnificent sarcophagi at Sidon, has a house beyond Pera, on the Bosphorus; the garden paths are ornamented with a floral pattern in black pebbles on a ground of pale yellowish-brown ones, and it certainly looked very quaint and pretty.

Mosaic certainly bore the name expressive of its origin up to the eighth century, for in the treaty made between Walid and the Roman Emperor it was called ψηφοδις, and may bear that name still in Greek, Arabic, and Turkish. According to Pliny, it was introduced from Greece by Sulla, who used it for the pavement of the Temple of Fortune he built at Præneste. Pliny says:— "Since his time these mosaics have left the ground for the arched roofs of houses, and they are now made of glass." The most celebrated pavement mosaic of antiquity is that of the battle of Arbela, when Alexander the Great finally overthrew the power of Darius. This mosaic was found at Pompeii, and it could not, therefore, have been later than the first century. Pompeii having been destroyed in 79 A. D., this mosaic is supposed to be a copy of a picture.

Most exquisite specimens of floor mosaic, as far as workmanship goes, have been found in Hadrian's villa at Tivoli, composed of fine stones in minute cubes. I have said nothing of the pavements of Byzantine buildings, for the very obvious reason that every mosque is covered with carpets or matting, so you cannot see the paving; but I believe it is generally the superb Opus Alexandrinum work, principally composed of purple and green porphyry let into white marble; but beautiful as marble mosaic is, it does not equal the force and splendor of that composed of glass cubes, and when this has a deep ocean blue ground it is the most magnificent of all decoration, except stained glass.

I told you before that the exact date of gold and silver mosaic is not known. Supposing St. George at Salonica was built by Constantine, and the mosaics are co-eval with the church, there is perhaps no mosaic left that is so splendid.

The Bema is said by Texièr and Pullan to be at the East end, another argument for the church not being of Constantine's time.

In classic days, with the exception of portraits of the emperors, or of private persons, the only titles to representation were being gods, physical beauty, and intellectual eminence. Gods, goddesses, nymphs, and demigods, were portrayed as the most perfect specimens of human beauty; for intellectual attainments there were lawgivers, philosophers, poets, conquerors, and statesmen.

Christianity changed all this; physical beauty was rather looked upon as the "sign of the beast." The forms most affected were those of saints emaciated by fasting, privation, suffering, and neglect, with their intellectual faculties almost extinguished by loneliness, vigils, and despair.

Byzantine pictorial art was, as it were, the mingling of these two streams of the Classical and Christian ideals. The Byzantines were too much imbued with the Classical spirit, and were too much encompassed with the masterpieces of Classic art, to be wholly devoted to the Christian view, not to speak of their instincts as artists, being in revolt against the portrayal of disease and deformity; so if we get an emaciated saint, we generally get some plump angels to complete the composition.

To return to St. George at Salonica. Th zone of the dome on which the mosaics still remain is divided into compartments by mosaic ribs, and each compartment is filled with two or three saints in front of an architectural background; the ground and the palaces or churches, are all of gold; the architecture is made out by being edged with color, and having colored friezes, bands, and ornament upon it. Each building is a golden house indeed.

The curtains with which all the openings are furnished are looped up, and are mostly of light tones and lively colors, bright peacocks and gray peahens, storks and cranes, perch on the roofs; in some cases pendent lamps are shown in each of the arcades. The saints or martyrs are in colored tunics and togas, with bare heads and hands, though in the case of old saints it is difficult to say whether it is their white hair or a white skull cap that is shown. They are supposed to be lifting up their hands in prayer.

One compartment contains three figures, viz., Therinos in the centre, Philip on his right, and Basil on his left; they have dark gray tunics, and pale blue togas, shot with pink, Philip has a white dalmatic; the floor on which they stand is gold. In another compartment Romanos and Eucarpionos stand right and left, on each side of an apse, the pavement is of gray slabs, with a darker stone in the middle of each. In another compartment, Onisiphoros and Porphoirios stand on the right and left of an apse, with a ciborium in the middle between them; the floor is gold. In another Kosmos and Damianos stand to the right and left of a circular ciborium, with three carpeted steps, light green curtains, two-thirds of the height of the columns, inclose it, and the hollows between the loops of the curtain and the golden rod are scarlet. These saints stand on a gray floor, the greater part of which is in shadow. The vaults of the chapels are also covered with mosaic in patterns, some having silver mosaic and some have birds in the panels.

Perhaps the finest mosaics are to be seen at Ravenna, in the tomb of Galla Placidia, the daughter of Theodosius the Great, who was once a Queen, once an Empress, and twice a slave. The tomb is cross-shaped, and the arms or transepts are covered with deep blue mosaic, and on this are magnificent ornaments and figures in gold. Some of the blue mosaic in this tomb is the color of a peacock's neck. Galla Placidia died in 450, and I suppose her corpse was embalmed, for it is related that her body was placed in the tomb seated on a chair of cypress-wood.

In St. Apollinare in Classe, of the sixth century, there is a most charming mosaic in the apse, with lambs in a meadow. The most stately and monumental mosaics are those in St. Apollinare Nuovo; on each side of the nave are friezes, the one on the north side shows a procession of twenty-two virgins, with the mitre on their heads, carrying crowns in their hands to the Virgin and child at the east end; behind them is a grove of palm-trees; on the south side at the west end is the town of Ravenna, with Theodoric's palace, and then follows a procession of twenty-five saints holding crowns and receiving the benediction of the Saviour, who is sitting on a throne; in this church is found a mosaic portrait of Justinian.

San Vitale has the most lovely mosaic ceiling over the sanctuary I have ever seen. The ceiling is groined and the four compartments have the ground counterchanged. The east and west compartments have dark green foliage on a gold ground, and north and south have olive-colored foliage edged with gold on a ground of green turquoise; in the scrolls are all sorts of animals; in the centre of each compartment four

winged angels stand on azure balls and support a circle of leaves, containing the Lamb, on a deep blue ground studded with gold and silver stars. There are also other fine subjects in the Sanctuary, notably Justinian and Theodora opening the church. Some of Theodora's ladies-in-waiting are clothed in tissue of gold enriched with jewels. The Empress is crowned, and in the Imperial purple. On the bottom of her robe the adoration of the Magi is embroidered in gold. She has strings of pearls from her head-dress hanging down to her shoulders. The nimbus in those days is said to have been an emblem of power, rather than of sanctity, for she has it.

I am indebted to Mr. Oppenheimer for a study of another fine mosaic in San Vitale.

Procopius (Lib. I., cap. 10) gives a description of the mosaic in the vestibule of the Imperial Palace of the Chalce :—"The entire ceiling is decorated with paintings, not formed of melted wax poured upon it, but composed of tiny stones adorned with all manner of colors, imitating human figures and everything else in nature. I will now describe the subjects of these paintings. Upon either side are wars and battles, and the capture of numberless cities, some in Italy, and some in Libya. Here the Emperor Justinian conquers by his general Belisarius; and here the general returns to the Emperor, bringing with him his entire army unscathed, and offers to him the spoils of victory, kings, and kingdoms, and all that is most valued among men. In the midst stand the Emperor and the Empress Theodora, both of them seeming to rejoice and hold high festival in honor of their victory over the kings of the Vandals and the Goths, who approach them as prisoners of war led in triumph. Around them stands the Senate of Rome, all in festal array, which is shown in the mosaic by the joy which appears on their countenances; they swell with pride, and smile upon the Emperor, offering him honors as though to a demi-god, after his magnificent achievements. The whole interior, not only the upright parts, but also the floor itself, is incrusted with beautiful marbles, reaching up to the mosaics of the ceiling. Of these marbles, some are of a Spartan stone equal to emerald, while some resemble a flame of fire: the greater part of them are white, yet not a plain white, but ornamented with wavy lines of dark blue. (Procopius, the buildings of Justinian, Lib. I., cap. 10.)

In the last chapter I gave you Constantine Porphyrogenitus' description of the mosaics in the Cenourgion, built by his grandfather, Basil the Macedonian.

There are some lovely ornamental mosaics in the narthex and the upper galleries of Sta. Sophia. Those in which the harmonies are got mainly by deep blue, silver and green, with a little gold and red, are, to my eyes, the finest. The figures have been mostly obliterated by painting or gilding over them, though in some cases a faint outline of them can be seen. Christ, the humble shepherd, with a crook, and a lamb in his arms, became later an Oriental potentate clothed in magnificent apparel, and sitting crowned on a golden throne. In spite of Byzantine art getting ossified by ecclesiastical interference, the Byzantine artists did keep for a long while the Classical traditions, and certainly learnt the art of monumental decoration. The simple and more primitive rules were always kept in view, dignified repose in the figures, and almost absolute repetition. I saw very little of late mosaic in Greece, it was not only nearly dusk at Daphne, but the church was boarded up for repairs, but we have most beautiful and careful drawings of its mosaics by Messrs. Schultz & Barnsley, and of other mosaics in Greece, etc. Some of the subjects in the narthex of *Μονὴ τῆς χώρας*, all in mosaic, are quite Classic in the folds of the drapery, and some is beautiful in color, almost like a piece of blue-vert tapestry on a gold ground; these mosaics are said to have been executed in the reign of Andronicus II. (1282-1328).

You must recollect that Constantinople was at one time a perfect museum of the masterpieces of ancient art; the Hippodrome and the Augusteum were full of them, and there can be little

doubt that these masterpieces were studied by the mosaic workers and illuminators. The great difficulty is to tell the age of illuminated MSS., for the illuminators were very fond of copying subjects from the old MSS. and from old mosaics. There are often to be found traces of old classical compositions, both in mosaic, and in illumination. At the Baptistery at Ravenna, there is John the Baptist on the bank, and Christ in the Jordan. This is not only shown as water, but is personified as well by a river-god with an urn and I O R D written over him. The MS. of Joshua in the Vatican, said to be of the seventh century, has many illuminations that are quite classic in treatment. Isaiah between night and morning, from a psalter, looks like a classic picture; it is now in the National Library at Paris, and is said to be of the ninth or tenth century. There are the remains of a few painted figures in the North Church of the Monastery in the Country; one could not judge of the general effect as decoration, as the bulk of the walls were whitewashed, and, besides, I am not a painter.

I beg to remind any painters reading this that there is a great future in store for them, in the two great popular arts of glass painting and mosaic. I say popular, because large examples of these arts are more seen by the people at large, and more appreciated by them than what is looked upon as superior work.

I know that glass is not only a transparent medium, but when used for windows is meant to let in light, so that in this respect it is false to nature, but it admits of form, composition, and color, and as regards this latter, the transcendent loveliness of good stained glass in sunshine, is not only sufficient to excuse all other faults, but is to me the most heavenly form of beauty.

Titian said of mosaic:—"It is the true painting for eternity," but from an architect's point of view it is wanted as the decoration for a building, and not as a bad copy of a picture in oil. I am deeply thankful to all living painters for preserving for my delight the beautiful landscapes, scenes, and persons of the day, and for showing me beauties I have not seen, which been have created by their imagination, and to the past painters for preserving the beauties of former times; and there is no doubt that for certain delicacies of color, and for certain qualities of texture, oil painting is supreme, but it is rarely so decorative in buildings as stained glass or mosaic. Pictures are transcripts from nature, either directly from things seen by the eye of the painter or evoked by his imagination; they are entities of themselves, and transport the beholder to the places they represent and to the period of the actions they portray. They present other scenes or other periods than those immediately surrounding the beholder; they appeal forcibly to his imagination, and transport him elsewhere. I ask myself is this the true decoration of a wall or ceiling? This wall or this ceiling is not only a necessity but a patent fact, and it seems only to ask to be made beautiful to look on and to require a certain amount of conventionalism in its treatment. From a painter's point of view, the exchange of this prosaic reality for some poetic vision may be looked on as an inestimable gift; the magic of his brush has annihilated the reality. Instead of a wall I see—

> "The maid-mother by a crucifix,
> In tracts of pasture sunny-warm,
> Beneath branch-work of costly sardonyx."

But as an architect, I do not want my wall or my ceiling transmuted; I only want it to be as beautiful as possible, and really the doing this affords the means of showing purity of outline, masterly composition, and certain broad qualities and harmonies of color. It by no means excludes figures, it only excludes pictures, and I contend that the rigid lines of architecture tend to give style to the pictoral composition that is put upon them. White marble statues and bas reliefs are from their color equally fatal to all full-colored decoration. I hope to see the backs of all our porticoes filled with mosaic, and all pediments and niches full of sculpture. I must also say to those painters

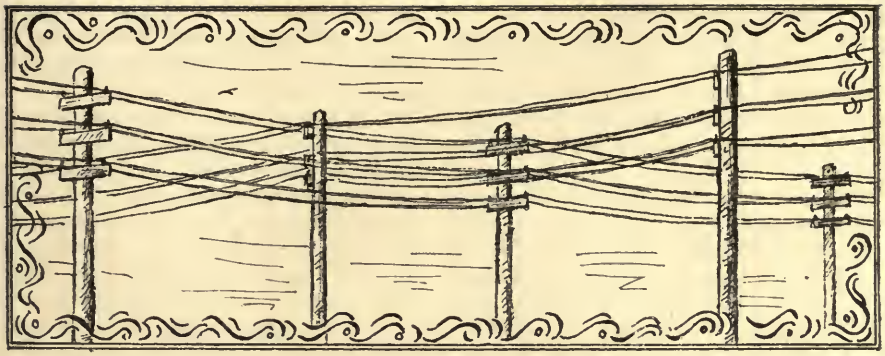
who wish to work in stained glass or in mosaic, that they must do much of it with their own hands, for I believe that we shall never get either art perfected by cartoons made in a studio with the work carried out by mechanics. It is essential to know the material, and to learn the art of producing the required effect in the spot intended, and this spot is often high up and peculiarly lit. Enameled brick or pottery is another means by which our dismal, smoky streets may be made lovely and resplendent with color. The health of the inhabitants would not only benefit by the smoothness of the surface, and the ease with which it could be cleaned, but by the beauty of the design and of the color.

What a fascinating vision it would be to see London, and all the great manufacturing towns, changed from dismal, sooty cities to those in which every building is full of color and artistic composition, made lovely by light and delicate or deeply-colored harmonies, or resplendent with gilt bronze, polished granite, porphyry, and glass mosaic.

Professor Aitchison.

(TO BE CONCLUDED.)





CROSS-CURRENTS.

ON THE RELIGIOUS ASPECT OF ARCHITECTURE.—Being the substance of a Lecture delivered before St. John's Theological School, Cambridge, Mass.

I HAVE been very courteously invited to speak to you on the religious aspect of modern art. I think you will justify me if I narrow this vast field a little and content myself with considering only the subject of architecture in this connection, for here, you will acknowledge, I may speak with some show of reason, while in any question of art, as a whole, I should be able to deal with the subject in an abstract way alone, since I claim to be neither painter, sculptor nor musician, nor yet a professor of æsthetics, but only a practical architect.

Yet there is no reason why a consideration of architecture alone should circumscribe our vision or qualify the exactness of our conclusions. The nature of art may be seen in any one of its manifestations, and I think that in architecture more than in any other art may perhaps be read the nature and laws of art itself; and in the history of architecture particularly may be seen most clearly the very fact upon which I wish to lay great stress, and that is the intimate and vital connection that exists between art and religion.

Now, possibly, you will say, "How can he speak of the religious aspect of modern architecture, when we have nothing that can really be called a logical school of architecture at all, unless he finds in the chaos of sectarianism, with its two hundred and forty lamentable divisions, some shadow of kinship with the riotous eclecticism of modern architectural style. How can he speak of that as religious which seems to the observer to be if anything most unreligious?"

Well, I must acknowlege that such a question would bear the show of justice, for it is a sorrowful fact that at present we can boast of no art which has the elements of vitality and of universality. Such poor art as we have is the possession of the few, the conscious striving of individuals for the restoration of that which their consciences tell them is the mark and measure of true civilization.

Therefore it is that we find the cause of art culture and the advancement of art paraded in all the gorgeous panoply of a reigning fashion. But the results that follow from this self-conscious propaganda are practically nothing; such improvement as there has been of late, and it is very marked, has been due to social and spiritual causes which have had little to do with art schools and art hand-books.

For art is not the result of a conscious propaganda; a few men cannot say: "Go to! we will create an era of art." Art develops only from certain conditions of life, and those conditions do not at present exist. Art is a flower; it will only appear on the tree of life under certain circumstances. Without the bloom, life is barren and valueless, for the flower is the proof of the healthy growth of the tree.

We live in a period of decadence, yet so peculiarly mean is the character of this decadence that we are denied even the luxurious, decaying art which with a certain degree of unworthy splendor blinded men's eyes to the imminent fall of Athens, Rome, Byzantium, Venice, Florence, sixteenth-

century England and eighteenth century France. Venice glared in its last days with the golden glory of Tintoretto and Veronese; and it was the same with the other dying civilizations. But as for us, so sordid is the nature of our decadence that we are left with nothing wherewith to cover our nakedness.

It is useless to blink the fact, for it still remains: We have no genuine art, as a people, and we can never have, so long as that which calls itself "modern civilization" possesses so little kinship with the true civilization which has created art in the past. We never consider the essential impulse of art, and it is pitiful to see the poor little attempts we make towards this end, still dimly felt to be desirable. We build big museums of art and crowd them with pictures filched from their homes, and casts which, for purposes of art education, are useless. Then the people go and stand before the mute memorials of dead civilization, wistfully and hopelessly. It would be laughable were it not miserable. One is reminded of a child who gathers roses and lilies and thrusts their stalks into the sand, hopeful of a fair garden.

Then, too, we establish Schools of Art, where we teach the children of the nineteenth century to draw charcoal pictures of chalky casts, and make oil studies of copper pots and of turnips. Then we wonder dimly why they don't go on and paint pictures that outdo the *Bacchus and Ariadne* of Tintoretto, or the *Sacred and Profane Love* of Titian, or carve statues which make one forget the *Victory of Samothake* or the *King Arthur* of Innsbruck. Of course they can't; they can only make still larger plaster casts, and pictures of more turnips and of bigger copper kettles.

For with that superficiality that characterizes our attitude towards serious things, we look on art as something which may be purchased or acquired, failing utterly to understand that it depends wholly upon a certain condition of life for its development, a condition separated from that of the present by the entire diameter of being. Rationalism, materialism and individualism are absolutely and finally fatal to art, as well as to many other things, and these characteristics are, you will grant, dominant and supreme in the present century, to the destruction, not only of art, but of religion, and of true living as well; and because of this, because our false system of life and thought has resulted in the utter degradation of labor and of living, we can no longer have that art which was the expression of man's delight in his own handiwork, while because, as well, the existing system has succeeded in the practical destruction of religion and of the religious impulse, we cannot have that art which was the result of man's sense of awe and reverence and worship.

For I hold it to be an immutable truth that art and religion are inseparably united, in that art is the manifestation of man's worship of beauty and idealism, the symbolical expression of those dreams and emotions which pass experience and transcend all ordinary modes of expression. Thus it is that art not only owes to the religious impulse its noblest incentive, but becomes the only means whereby religion can fully express itself. Through music, poetry, painting, sculpture and architecture, Christianity can appeal directly to the human soul, with a force and directness that are irresistible. I fully believe that the Cathedrals and Churches of Europe, solemn and majestic, full of dim light and strange stillness, with their splendid and mysterious ritual, have done quite as much towards the spread and preservation of Christianity and the raising of the Catholic Faith to supremacy, as the careful writings of theologians, or the exhortations of preachers. And I also believe that Puritanism owes its failure quite as much to its enmity to art and beauty as to the peculiar nature of the mistaken theology which condemned these things.

It is for this reason that I believe all questions of art are of vital interest to every one who accepts, or works for the spread of the Catholic Faith. Art is the ready servant and ally of the Church and never have her proffered services in the shape of ritual and adornment been accepted without vast benefits, as, on the other hand, never have they been rejected without corresponding loss. Iconoclasm and Puritanism are very unsavory episodes in Church history, and the disasterous results they achieved have amply proved the futility of their excuses.

I said that I would confine myself to the question of architecture alone and I must keep my word. It is, I think, a branch of art which must appeal very strongly to you, for in these days of the youth of the Church in America it will fall to the lot of nearly every Priest to be connected at some time with the work of Church building, and there can be no more serious question than that of the proper building of the structure which is the earthly Tabernacle of God and the temple wherein are solemnized the sacramental mysteries of the Catholic Faith. Not only this, but on the designing of the Church may depend the success or failure of the given work, for a church which is an inspiration, an impulse to worship, will work silently but surely for the strengthening of

Christianity, while a tawdry or barren building will be not only an insult to God, but a hindrance to the spread of the Faith. Too often, unfortunately, the question has been one merely of fashion or of expediency, or of the predilections of some careless or ignorant or infidel architect, and as a result the American Church is able to boast a collection of churches which for bizarre and grotesque hideousness equals that of the denominations, while it is exceeded only (in my opinion) by the actually blasphemous architecture of the Roman Church.

For the past fifty years, keeping pace exactly with social and mental conditions, architecture in America has been in a state of incorrigible chaos. Style has been but a riot of strange and outlandish fashions, sought out of the dead past and galvanized into a fictitious life. This has been true of ecclesiastical architecture equally with domestic building. Now architecture, together with all other branches of art, is the exact representation of existing conditions; that, therefore, chaos should reign in domestic work is eminently just, but that the same condition should hold in ecclesiastical architecture is a strange and awful happening. I dare not say that it is a true representative of the condition of the Church, so the only alternative is to say that this chaotic condition of things should have obtained in the Church which, before all else, should be permanent, immutable, unwavering, is a scandal and a reproach.

What is the reason of this? How is it that where once we found the Church not only cultivating, but creating art, the centre of artistic influence, the impulse of all great artistic endeavor, we now find her indifferent, careless, accepting any cheap and tawdry fancies that may be suggested by so-called architects? Why is it that up to the period of the Reformation we find the Church leading art to all possible glory, while since then art and the Church have been utterly severed? I think there are two reasons: The first is, it seems to me, that at the time of the Reformation much that makes Christianity beautiful, idealistic and lovable was recklessly thrown away by England and the nations that accepted Protestanism. Of this reason I have certainly no right to speak. The second reason touches me more nearly, and it is this: that during the last days of Henry VIII., and through his deliberate action, architecture, and all other art as well, was utterly stamped out of England as it was also stamped out in the other nations that accepted the reformed faith, and that from those sorrowful days art has been compelled to seek other protection; failing to find this it has sunk lower and lower, until it has become in this century what we see it to be in France and Germany, atheistic, lawless and debased.

During the fifteenth century, churches were built in half the towns of England; it was a period of gigantic religious enthusiasm. When the Scourge of England died he left a land that looked in vain for evidence of religious life, as such life might be shown in architectural effort. Not for three hundred years were the offices of architects required by the prostrate Church, and when at last in the middle of the present century there came a new impulse into the life of the Church, the estrangement between her and the architects was complete, and the misunderstanding also. Therefore the Church came to look on architects simply as on builders in good clothes who wanted their commissions and nothing else, while to the architects the problem of church building was purely mechanical. It was a grievous condition; on the one hand the Church ignorant of art and of beauty; on the other, architects careless of religion and of spiritual things.

Let me ask you to consider with me for a moment the history of this time, for in it may be most clearly seen not alone how architecture was utterly destroyed by Henry VIII., but also how closely and exactly its vicissitudes correspond to those of contemporary life. If one were disposed to doubt this intimate connection a review of this sorrowful time would be sufficient to bring conviction.

With the close of the great fifteenth century in England, architecture reached the climax of its progress, which had been glorious without pause from the days of Edward the Confessor. For four hundred years and more, keeping pace with the civilization of the people, architecture had grown from the first rude Norman of Canterbury until it burst into the glorious blossoming of Christian art during the York and Lancastrian dynasties. Under the beneficent guidance of the monks and friars, England had grown great and prosperous—great with true Christian greatness, prosperous beyond the fortune of most nations. Finally, with the opening of the fifteenth century came what has been called "the golden age of the workingman," and as a result this new prosperity, which owed so much to the labor of a humble priest, John Ball, became one of the causes of the great impulse towards church building which marks this beautiful but slandered century.

When the House of Tudor succeeded to the throne there was scarcely a town in England

where a new parish church, fresh from the hands of loving workmen, could not be found, or at least where was not some tower, or chapel, or chantry, or tomb newly added to the parish church, which was truly the centre of life of every knot of people. It was the flowering of Christian civilization.

But the architecture which was making beautiful the whole country of England was by no means, in itself, the last word of the Gothic or Christian style. Beyond the marvelous fabrics of the first years of the sixteenth century lay still infinite possibilities. The chapel of Henry VII. at Westminster, Kings College chapel at Cambridge, St. Mary's Radcliffe at Gloucester, these matchless buildings were by no means final; the building impulse was still at its height; the religious incentive had weakened not at all; the future seemed bright with promise.

Under Henry VIII. came at a blow the destruction of English architecture. From the day of the separation of England from the Roman obedience the doom of architecture in England was sealed. Like a second "black death" Henry's infamous emissaries swept over England leaving desolation behind them. The people rose in valiant defence of their guides and protectors, the monks and friars, but their struggle was in vain. Abbeys and monasteries, cathedrals and churches, shrines and tombs, fell the prey of mercenaries. Desecration took the place of consecration. Churches were no longer built but destroyed. Abbeys and convents and monasteries, once centres of education, charity and benevolence, were blasted as by fire, and turned over barren and desolate to the conscienceless knaves who had obeyed the orders of a most evil King.

When Mary I. ascended the throne she found desolation where once had been gardens and orchards and shady cloisters. She strove against the bigotry of a class of people who had fallen under the influence of her predecessor, and would have restored the property of the Church to its rightful owners, but her efforts were cut short, and under Elizabeth the work of Henry VIII. was continued.

Architecture as a vital art had come to an end in England. It had died a violent death, not a death from exhaustion.

Under the Stuarts it seemed that a new life might be restored to the dead art, and under James I. and Charles the Martyr attempts were made to bring the beautiful style, killed under Henry VIII., to life once more. The peace and plenty that came to England for ten happy years under the greatest of the Stuarts was a good foundation, and the strong hand which controlled the growing Puritan fanaticism gave promise of ultimate religious peace. But any hopes in this direction were futile. With the martyrdom of the King and the triumph of Puritanism all hope came to an end.

For two centuries England was barren of Christian architecture. The religious impulse was dead, and little by little all capacity for artistic creation died also. England sunk swiftly in the scale of civilization, and with the close of the eighteenth century had lapsed into an industrial, social, intellectual and religious condition which it would be hard to parallel in her history. The policy of Henry and of Elizabeth had won its reward.

During the dark ages of the eighteenth century ecclesiastical architecture was non-existent. Early in the succeeding century, however, came the first movements towards a reform of the current barbarism in life: the factory and labor laws. Religion was still prostrate, and the Anglican Church had fallen into a condition of such hopeless lethargy that she seemed beyond all hope of resuscitation. Reform was in the air, however; in fact, men began to realize that the next logical step beyond the existing condition of things was one hardly pleasant to contemplate. In the year 1833 Keble preached his sermon on National Apostacy. From that day began the movement which raised the Establishment from destruction. The influence of the Oxford movement spread like flame; the conscience of the nation was aroused; there was new life in the air; it showed itself everywhere.

It is sometimes said that the Oxford movement was due to the Gothic revival, and sometimes that the latter was due to the Oxford movement. Neither of these theories is true; both were manifestations in different directions of the same great animating impulse. Men were awakened to the consciousness that the last three centuries, if they had not been a mistake, had at least been most misleading, in that they had resulted in the practical barbarizing of England. Therefore arose an impulse to go back to the parting of the ways to rectify the evil that had been done.

The success of the spiritual revival was vast. Economic reforms kept pace with it, and in fifty years England had been saved from the danger that had threatened her.

As a result came a new life in art, for art, as I have tried to show, is always the outgrowth of a time—not an accident, but a result. The work of the Pugins was the beginning of the new archi-

tecture. In quick succession came the great Gothicists, Street, Scott and Sedding. It is significant that of the leaders in this architectural revival, the Pugins, Street and Sedding were all ardent and zealous Catholics. Simultaneously came the great painters of the Victorian Renaissance, Dante, Rossetti, Watts and Burne-Jones, and with them Morris, in some sense master of all, and Walter Crane. In literature, the Renaissance was equally brilliant, but of this there is now no occasion to speak.

As for the architecture which followed the religious revival, it was what only could have been, the Christian traditions and principles of the fifteenth century restored to life again. Of course in some measure the new work must be halting and uncertain; an art that has been dead three centuries is not easily to be revived. But from the days of the elder Pugin there has been a steady advance, until in the late John D. Sedding seemed to be born again the beautiful old fifteenth century spirit in all its fullness and delicacy.

Yet of late there has been a weakening of the followers of the Christian style of architecture; there has been a wandering off after strange gods. Is it that the moving spirit is failing? It were hard to think that. Rather let us believe that it is only a temporary halting, a yielding for the moment to the tremendous pressure of the barbarism that is still so powerful. Yet, whatever the result, even if the architectural revival of the Victorian Renaissance prove but a temporary brightness, a promise without fulfillment, the fact must remain that with the period of the Reformation architecture ceased to exist in England, and that until the Oxford movement gave new life to the art, England, architecturally, was a barren wilderness.

Is it not clear from this that architecture *has* a religious aspect? I think you must acknowledge it. At present its condition is one of black chaos shot with sudden flashes of vivid genius. It can only become great and glorious again when the evil conditions of society and of life under the present regime have changed for something more in harmony with justice and with Christianity. They who believe that architecture may be made honorable through the establishing of architectural schools are nourishing a very vain delusion. Secular architecture at present is exactly and only what it can be; but this is not true of ecclesiastical architecture. It is not pleasant to admit that the Church has yielded to the influence of the world, though only too often facts would urge us to do so. Yet even were we to grant that during the past three centuries she has been cursed with grievous sleep, we at least can urge that at last she has awakened, that new life has entered her, and that, throwing off one by one the errors and heresies that so long have bound her, she has taken up with renewed strength the work brought so nearly to an end in the sixteenth century.

Therefore as she returns in a measure to the great days of the fifteenth century for inspiration and incentive, so should she return also in architecture, bridging the empty hiatus of three centuries, and taking up once more the glorious architecture that was annihilated under Henry VIII., raising it to higher glories yet, thus symbolizing the renewed vitality that has entered her. To take up this uncompleted work seems to me the duty of the Church. To her we owe the glories of Mediæval art, why should we not owe to her the new life of architecture, raised from the chaos where it has so long wandered. This is perfectly possible, but so long as the Church is willing to accept every fanciful architectural style that offers, the chance of fulfillment is very small. Let the Church take a firm stand, insisting that her building shall be representative of her history and of her life, and in one style, the style that was developing so brilliantly in the early sixteenth century, and in a short time we shall have a calm, steady influence working in architecture which would be the salvation of the art and the glory of the Church.

I have tried to show that architecture, together with all art, has a very decided religious aspect; that at the time of the Reformation architecture in its nobility was annihilated in England, that its present low condition is due to the chaotic state of affairs that has existed for so long in religious and spiritual matters, and that such noble architecture as we now possess, in a few instances, is due almost wholly to the religious revival of the early part of the century. I have also argued that the existing chaos in domestic work is quite representative of contemporary conditions, and that while such chaos may have justly expressed the religious condition which has gradually developed during the last few centuries, it can no longer do so, since the Church has awakened to a new strength and clearness of sight, wherefore she is swiftly correcting the errors into which she had fallen. And this being so, I have urged that she look once more upon architecture as a most useful ally, that so she may manifest herself to the world with a splendor and a strength that shall increase gloriously as she wins back the

honor and power which are hers of right. And in this wise shall she not only stand beautiful and majestic once more in the sight of men, but also shall she come once more to be the patron and protector of art, until not only has she raised ecclesiastical architecture to honor again, but, as her influence becomes once more dominant in life, domestic architecture also, for it may be granted her even to destroy those evil social conditions which now make art impossible. And thus shall the splendor of the Renaissance be repeated again in a Restoration which shall be not alone a restoration of beauty and of art, but of poetry and of idealism, and above all of a renewed and glorious Christian civilization.

If in what I have said there is anything of offense let my excuse be my absolute conviction of its truth. *Ralph Adams Cram.*

The foregoing address was delivered by Ralph Adams Cram before the St. John's Theological School, Cambridge. It merits from more than one point of view the attention of our readers, and for the privilege of reprinting it this magazine is indebted to the kindness of the author. An attempt is made by Mr. Cram, in this paper, not only to define the relation between religion and art, but to apply his definition to the present deficiencies of ecclesiastical architecture in this country and in England. I am sorry I cannot wholly accept the conclusions to which Mr. Cram arrives, and I propose to supplement his address with a few remarks from a rather more liberal point of view. The question is one, be it observed, that belongs less to the "practical architect" than to "the professor of æsthetics." I am neither, but if I can apply a few generally recognized æsthetic principles to the difficulties propounded by Mr. Cram I may do something to assist the cause of clear-thinking.

That the present condition of our architecture, both ecclesiastical and secular, is not all that might be desired, I suppose every competent architectural critic will admit. Indeed, I will go so far as to say that an enormous majority of the buildings erected at the present day in this country lack the one element that makes architecture a fine art; they lack fullness and dignity of expression. Architects cannot object to this statement, because they themselves have denied that they are artists. In the resolutions passed by the American Institute at its last annual meeting in reference to competitions, architecture was distinctly classed as one of the professions, and any one who is accustomed to talking with architects knows very well that they usually consider themselves professional men. The generally recognized difference between a profession and a fine art is that the former can be acquired by any man of fair abilities, while the latter needs for its pursuit a peculiar gift. Consequently it would seem as if our architects considered that there was nothing in architecture which could not be learnt.

In saying this I am, perhaps, stating the matter a little strongly. The practice of any profession demands a certain amount of talent, but the talent in the consummate lawyer is not so important as his knowledge. He could get along better without the former than without the latter. In the same way it would be more correct to say of our contemporary architects that they place more reliance upon the elements of an art that can be acquired than upon those which are necessarily temperamental. All the deficiencies of our architecture are but illustrations of this fact. Our best architects have taste, intelligence, skill and knowledge. The skill and knowledge are acquired; the intelligence is native but it is not an artistic trait; the taste also is native but even when supplemented by knowledge and training it is never adequate, for taste may be defined for my present purpose as only the temperamental power. Hence it is that the criticism most frequently to be passed on many of the good buildings of the present day is that they are wanting in composition. They generally contain admirable features; but the features are not fused into an artistic whole. Taste, you see, is a suggestive rather than a constructive faculty. It needs to be supplemented by imagination in order to produce any completeness of expression in art. The errors of architects a little lower down the scale are exaggerated examples of the same deficiency. They have less taste, less skill, less knowledge and less intelligence than their brethren. If the work of the latter lacks harmony and vitality, the work of the former is often characterized by flimsiness and commonplaceness of design. Marked incongruities take the place of parts that do not fit; pretty features degenerate into patent devices; and the whole tendency is towards either slavish imitation of forms or grotesque vulgarity—a stage which is, of course, reached in the work of our least meritorious designers. Mr. Cram speaks of the "riotous eclecticism" which characterizes our present architecture. The phrase is too severe, if we confine our attention to the work of our best architects; but it is in the main just. We

may need to use many styles for the many different kinds of buildings which modern life requires; but these different styles should have a significance of expression as well as a diversity of form.

Mr. Cram seizes upon the obvious fact that our modern architecture is, at its best, the result of taste and skill rather than the happy man and the happy moment, and declares that therefore our modern architecture is damned. For, with that superficiality, he says, which characterizes our attitude toward serious things, we look on art as something which may be purchased or acquired, failing utterly to understand that it depends for its development wholly upon a "certain condition of life"—a condition separated from the rationalism, materialism and individualism of the present day by Infinity itself. In this way does Mr. Cram inveigh against our "sordid period of decadence" until all his readers will be convinced that either the time or Mr. Cram is very much out of joint. Art is a wide term and comprehends much that Mr. Cram would consider to be quite inartistic; life, too, is a thing of some compass, and it is perfectly possible that the "certain condition of life" which is necessary to art may be so complex in nature that our prevailing society can have some of its elements without having all. Dropping for the moment national distinctions, I for one would not care to say that a society which made possible Victorian poetry was a society which put a deadly blight upon art. Neither can we associate Victorian poetry too closely with the Tractarian movement which, according to Mr. Cram, is the only source of fruitful artistic creation in this putrid age. In the same way a more cautious critic than Mr. Cram would hesitate to describe as sordidly decadent a society which, at its best, seeks so eagerly, so courageously and so persistently for the realization of a better life among men, and yet is so determined, if building is possible, to build only on the broadest, deepest and most stable human foundations.

The nineteenth century is filled with spiritual power. We do not build Gothic cathedrals equal to those of the thirteenth century; but ecclesiastical architecture is not the only medium through which the human spirit can be revealed. Let us be thankful for what the Church accomplished during the Middle Ages; but if the Church has lost its hold upon mankind it is because mankind has outgrown the Church. The Gothic cathedrals were not the result of religious enthusiasm as such: they were the result of a religious enthusiasm directed and dominated by an ecclesiastical organization. If we can have such a form of art only under such conditions, then the end of the nineteenth century is to be congratulated upon the fact that it cannot build Gothic cathedrals. At all events, Mr. Cram's identification of art with religion is in truth only the identification of one kind of art with one form of religion. The true religious spirit is more powerful outside the Church than it is within the Church, and we must always remember what Mr. Cram always forgets, that the true religious spirit is infinitely various. It is not simply belief in a creed, susceptibility to profound religious feeling, or a highly emotionalized kind of advanced morality; it is *any* striving after a higher life. It is not divorced from business, scholarship, thinking, or any work in one special direction; it can be realized in every kind of effort. Mr. Cram misunderstands individualism, rationalism and materialism because his creed contains no place for these elements of life. He condemns them not merely as the excess of things that are, in their way, substantial and legitimate contributions to the wholeness of human nature; but by drawing the strongest kind of a contrast between them and a vital religion he condemns them absolutely. The logical result of such a condemnation it is interesting to trace.

Mr. Cram's unqualified condemnation of individualism, rationalism and materialism permits at best only an external and mechanical relation between the two most important sides of our nature; and such a relation always means that both sides go to an excess. In a society where wealth is only a means of placating the spirit for its pursuit, the rich will generally deserve a bad reputation. The prevalence of the conception in both Catholic and Protestant societies that the spiritual life contains no place for individualism, rationalism and the pursuit of wealth really causes what antagonism there is between religion and reason, religion and wealth, and religion and the individual. If you tell a man whose nature is predominantly rational that the use of his reason will never lead him towards the highest truth, instinctively he will answer that if such is the case he is perfectly willing to do without the highest truth, and his future thinking will very possibly be determined by the belief that his own reason, which the strongest instincts of his nature force him to depend upon, contains within itself no possible relation to Infinity. He will use his reason against the Church which will not give it a place. In the same way, if the representatives of religion place a necessary stigma upon the accumulation of wealth, the business man is very likely to answer, "Very well! in that case, I will pursue my own

path irrespective of religion." And so life is broken up by a religion which assumes an authority over all the legitimate instincts of mankind without giving any of them an individual sphere. No wonder rationalists and individualists go to an excess when temperance within their peculiar provinces has no divine sanction, and its exercise leads to no vision of the higher things.

Whether, as a matter of fact, in our present society our individualities are too aggressive, our rationalism too thorough-going, and our pursuit of wealth too absorbing, is of small importance to the present discussion, for Mr. Cram condemns them without qualification and does not spare language in describing the society in which they predominate. But, admitting that these ends are in many cases pursued too mechanically, what ought to be our attitude towards them? Manifestly we should try to stimulate what is good in them and curb what is bad; and this can be done only by meeting the individualist, rationalist and materialist on his own ground. So far as individualism is too aggressive, it tends not merely to destroy the humaner feelings, but to commit suicide; for the bad working of any part of an organism like society reacts on that part by demoralizing the whole. The fact that individualism is able to make the conquests that it does make proves that the good in it at present outbalances the evil. This being so, we can attack the evil only from the point of view of the good. In spots and for a short time there is certain to be friction; but the lapse of a few years soon restores harmony. In the same way a rationalist, so far as he is wrong, cannot be refuted by being called a fool, an atheist and a wicked man; he must, as it were, be answered from the inside. His excess of rationalism must be shown to be irrational, and this can be done only by indicating as well how far he is right. An address like Mr. Cram's would never make an opponent desire a fair and fruitful discussion. It would simply arouse the rationalist's indignation and contempt by its complete ignoring of all that the activity of reason can do and has done for the human race. I do not say that a discourse written in a more catholic and discriminating spirit would of itself be much more likely to convince an opponent, but it is certain that the introduction into the discussion of some sweetness and liberality would in the end tend to bring about a certain measure of agreement.

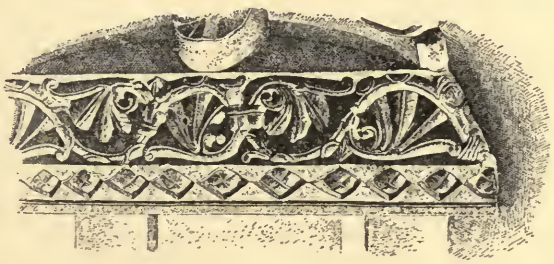
I have admitted that our best American architecture at the present time is essentially the work of skilled professional men, that it lacks dignity, fullness, or appropriateness of expression. But this admission does not commit me to all that Mr. Cram says about the futility and superficiality of our conscious striving after art and its message. It is true that those who possess this striving are hampered by their surroundings, and it is true that there is an element both of the ridiculous and the pathetic in the foolish efforts of many people, much better adapted to other occupations to reach after a prize which they are not capable of grasping. Yet is it not better to strive consciously after the message of art than to sit contented in its absence? If people were so completely absorbed in money getting that they had time for nothing else, then, indeed, our society might need some prophet of evil to make them aware of their responsibility to the spirit within. But to my mind one of the most admirable traits of our contemporary society is that it reacts immediately against an excess or a deficiency. The fact that so many of us are too much absorbed in business and pay too little attention to art and literature drives others to protest vigorously against such baleful absorption and to seek eagerly for the message that art and literature brings. This is the result of that very individualism which Mr. Cram mistakenly identifies with arbitrary personal caprice. Doubtless the manifestations of true individuality among us is associated with much that is arbitrary, capricious and worthless; but the real thing is cheap at such a price. When in any society diversity of temperament finds expression, that society is not allowed to forget itself in an excess. The worse the intemperance becomes the greater is the resistance it arouses. Hence it is that our modern civilization is self-corrective as no previous civilization has been. It does not wait until evil ways have brought it to the verge of destruction; it has sufficient power to reform the evil before substantial corruption sets in. This is the characteristic of what Walter Bagehot has called an "age of discussion." Our conflict of ideas is so wholesome and stimulating that I should scarcely hesitate to call it one of the best results of the process of civilization up to the present time. It makes a conviction what *in the beginning* a conviction ought to be, viz.: the expression of a temperament; not the slavish adoption of ideas imposed from without. There is no other road to the temple of Truth.

Hence it is that I admire this conscious striving after art which Mr. Cram takes to be so worthless. Worthless it may be in its immediate artistic result, but morally it is all that we have any right to expect. If we continue our conscious striving and our zealous propaganda of the value of art in

human life we may in the end bring about that "condition of life" which is the prerequisite of art. In spite of the great spiritual significance of the "age of discussion," it is not favorable of itself to artistic production. A serenity, an adequacy of temperament to its aspirations which is utterly lacking in our present society, is needed for the noblest imaginative flights. Hence it is that poetry, the art in which ideas are most consciously expressed, the art which permits the greatest divorce between the inner vision and its concrete symbol, is the only art, save that of music, in which we excel. How soon and in what way the happier "condition of life" will emerge from the prevailing conflict of ideas and individualities I do not know; but I know that the conflict is necessary to found our superstructure on the deepest facts in human nature, and I know that among the things which conflict tends to destroy is the conflict itself. It is always straining to reach the higher glory of fulfillment.

Meanwhile our current life is not so destitute of the higher opportunities as Mr. Cram would have us believe. We must take part in the conflict, but we need not be confined by its limitations. By this I do not mean that people who possess aspirations without gifts should set up as artists. The extent to which this is being done at present is, as I have said, both pathetic and ridiculous. But although a man is not equal to artistic creation, he may be fully equal to the next best thing—a thorough and liberal appreciation of the art that is. I admit that even this cannot be fully acquired without certain gifts, but the gifts that are needed for the acquisition of culture are not so rare as those needed for artistic creation. The point is, however, that culture demands that very conscious striving which is not necessary (although it may be useful) to an artist. Like everything worth having, it is based upon temperament, but its ideal is the realization of a given temperament by bringing it into organic relation with the deepest and most significant things in life. From this point of view it may be defined as the meeting point of art and morality. An artist may think that he is satisfied with his own revelation, but satisfaction with any one phase of art or with any one interpretation of life is death to humanism. Culture presupposes amid the many real diversities the spiritual unity of all the manifestations of the human spirit; it presupposes that no one manifestation is complete; it demands that a man shall try his best to make all of those manifestations his own. It proves the validity of its own presuppositions by realizing them. Can any one fully appreciate mediæval art without having appreciated Grecian art? Can any one master Browning without having mastered Shakespeare? And if one has in a measure come to a realization of Goethe's vision of life is he not thereby enormously assisted in his appreciation of the whole of German literature? We may have specialists in the study of comparative art; we may have our preferences based upon our temperaments amid the various artistic manifestations; but in culture as culture there are no specialists, This ideal of humanism is essentially modern. It is one great contribution of the thought of the nineteenth century to the philosophy of life. It is compensation in full for all the jarring elements in contemporary society.

Primus.



CORRESPONDENCE.

ANENT THE "DAILY RECORD" BUILDING OF BALTIMORE.

Editor ARCHITECTURAL RECORD:

In the last issue of this magazine a certain critic has pretty badly abused one of my buildings, the *Daily Record* Building of Baltimore, and has painstakingly endeavored to prove the designer utterly, absolutely and needlessly to blame. It is easy to criticise, even the best of work, especially where the critic hides behind the screen of anonymity and clothes himself in the disguise of the editorial "WE;" but I conceive his criticism to be so unjust, so malignantly distorted, that I ask to be allowed, in common justice, to defend myself.

It is not that I care for the critic's opinions, but some of the public may happen to read them and suppose them true, and I should in consequence suffer. Really, the article is so like abuse that I hardly know in what way best to answer or where to begin. The critic abuses the building; the various reasons for so doing being, as he states, as follows:

Treatment of the narrow front, because it has not horizontal lines; because, from inference of his text, it has more than one opening in width. He says "the sacrifice of the front is made of course for the benefit of the tower at the angle."

This is not true, for it is not sacrificed at all by the mode of treatment adopted; on the contrary, the preliminary sketches discovered this method, as the best to relieve the front from the tameness and the commonplace appearance, the treatment suggested by the critic produced. But even if the front did suffer by this treatment it was not because of the desire to have a tower; but because of the necessity of the increased room given by the "oriel" at this point. It is the wildest exaggeration to say, "two buildings have been made instead of one in this 16 feet space," as does the critic—since the spaces between the heads of windows in one story, and the sills of those above, are only recessed 4 inches; are built of the same brick as the rest of the walls, and, further, the reveals are of rounded or bull-nosed brick.

But in the illustration, a designed falsehood has been perpetrated, in drawing by hand on a photograph thick black lines at these reveals, and in certain other places to which the critic objects—a thing against possibility or truth. However, the critic did not care by what means he carried his point of maligning the building. He says I intended what is a polygonal sash frame to be regarded as a tower. On the contrary, I never thought or spoke of it as a tower. The specification and plans always referred to it as "The Oriel," and the "tower" idea is the conception of the critic. A further deliberate misstatement is to say that the illustration does not show the full measure of the defects. The contrary is the case, since the view is taken from the level of the fourth floor windows, whilst the building was designed for the effect as seen from the street, a view which is had a thousand times for once from the level of the roofs of the opposite houses; and therefore in the view the tower story or basement has been diminished out of actual proportion, and in fact much of the building is shown upside down. Now if the structure at the angle is only a sash frame, as it truly is, and as the critic indeed says in the same breath that he invents the title "tower" for it, there is no impropriety in constructing it over the opening, which opening below, by the way, was of course necessary.

As to the unpardonable sin of this window being constructed of wood covered with galvanized iron. My specification shows that originally this was proposed to be of copper (as were all the metal portions), but I was compelled to use galvanized iron, much against my wishes, in order to reduce the cost. Probably the copper might have been as objectionable to the critic, who would have used heavy stone, or brick, and so committed the fault of which he wrongly accuses me; making a heavy structure over an opening, whereas I used, and was honest enough not to pretend otherwise, light metal construction for the projections.

He abuses the long front, because it is not symmetrically divided up; that is, that the stairway does not come in the centre of its length. He abuses the bay window projections because there is a row of them; because, he says, the pur-

pose of a bay window is lost when a man can see into his neighbor's windows. As regards symmetry, so far as one end of the building being same size, or length, as the other, I have yet to learn that this is essential, unless, indeed, in a strict classical design, and if I have erred in this respect I am in excellent company. But the departure from symmetry was a matter of necessity arising out of the plan. Had the critic taken the trouble to look inside the building, and had he been unprejudiced enough to admit it, he would have acknowledged that to locate the stairway in the centre of the length would have utterly destroyed the economical and advantageous arrangement of the offices, and that so far as plan goes my arrangement is the best possible. The length of the building would not have been enough for six offices, though it was possible to get in five, and of course it was necessary to get in as many as possible. (I may parenthically remark here that every office in the building is rented.) If it be best for the internal arrangements, why not be honest and show it on the outside? I hold that the exterior of a building should conform to the interior. Apparently, if the critic means anything he means that the building is hideous because it is not a reproduction of some severe classical form. Somehow, I fancy he must be either very young or very bigoted.

I remember when I thought classicism was perfection (I was brought up in a thoroughly classical school), and that everything without a precedent in Sir Wm. Chambers' or Vignola was loathsome. And afterwards I admitted the strictest schools of English and Continental Gothic to my faith, and I swore by the old gospel of Classic work, and by the new gospel of Gothic work; but everything should be literally quoted therefrom, and nothing should originate outside. And there were many like me. And all this time we heard the frequent cry for a new style of architecture, and some attempted it, but they failed, because they were bound in the chains of their early training, and they failed to perceive that the style of a building should be the intelligent and gradual growth of the needs of the times, of the purposes of the structure, of the structural means or materials. A great change, however, has taken place, and there is more likelihood of new types of architecture arising now than ever before—at least, in the recent centuries—for so many of our buildings have such a number of stories raised one on the other, they are built of such dimensions, of such proportion. the new devices of methods of using materials are such that one would indeed be blind and unintelligent to confine himself to the same gamut which served the designers of old.

I do not wish to be misunderstood. Had I to design a temple, an art gallery, a triumphal arch under the same conditions as controlled the masters in Greek, in Roman, in Renaissance, I believe a strict and humble patterning after them might be nearest to excellence. Had I to build a cathedral in a spacious close with years in which to erect it and no thought but to use stone for ceiling and cut stone for pinnacle and for window tracery and for the wealth of beauty which the old Gothicists spent on their work—I, too, would strive to design in the way which they brought to such perfection. But for our modern city buildings these old types are frequently entirely unsuited, and the most successful of them are but compromises, and some of us try to fool ourselves by claiming that they are in this or in that style, or we may go so far as to say "an adaptation" of it.

There are certain cardinal principles of construction to be observed, certain defects to be avoided, such as the superimposing of weights, heavy piers over voids (though even this has to be done often to give the merchant the store windows he requires, and in these days of iron and steel construction the educated builder who knows how it is done, and how safe it is, learns to govern his criticism accordingly); but within these lines the builder should be free to shape his work as best suited its needs. Another very important point should be remembered in considering such buildings. It is a legitimate need of most commercial buildings that they should be distinctive. As in selecting the title of a book, as in phrasing or displaying an advertisement, the aim is to attract notice. It is no use to put on airs of dignity; it is one of the necessities of the time, and being a necessity, it is, I claim, as I said, legitimate. Hence in such buildings it is proper to introduce features (which otherwise would be superfluous) so long as they can serve that purpose, and some structural reason for their existence can be shown. In the building in question, the corner oriel has been introduced, firstly and mainly, to give additional room to the offices. Secondly, this oriel gives a straight view down four streets, which would be unavailable otherwise. Lastly, and no despicable reason either, it gives a prominent feature to the building, which is of great value to it as a commercial building. It enables it to be recognized at a considerable distance in at least four directions. Again, this anonymous critic should learn that a small building must needs be treated differently from a large

building when one of the needs of the building is to attract public attention. Had this block been of great magnitude, like the "Equitable" in the adjoining square, its size alone would have given it the necessary attraction; but a quiet building, as your critic suggests it ought to have been, would have been, artistically, simply insignificant, and commercially a failure. The lot at my disposal was exactly 17 feet 5 inches wide; out of this I had to take the thickness of two walls. Will any competent and fair-minded person look at the plans and say that either bay windows or oriel could be dispensed with to its advantage? Further, this oriel helps the narrow façade—it makes it look wider than it is; and it does it in two ways; it actually adds to the width (about 14 per cent or 15 per cent, indeed), and also it disguises the real corner when facing the building obliquely, so that you can not definitely limit the apparent frontage. It has been a matter of frequent comment by the passers-by, how much wider this front looks, than they had expected when the building was started. Now, having created this oriel, it required a roof and a termination. I suppose your critic would have put a flat roof on it. Well, I am thankful to say I would not, and did not. It is very easy indeed to throw ridicule on anything; it is very easy to call this roof an "Extinguisher." It is true candle extinguishers have very commonly been made of a cone shape—as is this—but therein is the only similitude.

It reminds one of the similitude discovered between Monmouth and Macedon—both places began with M and both had rivers. One might ridicule Trajan's column and call it a candlestck, for it bears as much resemblance to a candlestick as the oriel roof in question does to a candle extinguisher.

The critic speaks of "Variegation" of the skyline. I do not know if he used this word in ignorance, or purposely chose a word which would still more ridicule the building. Certainly, as in nineteen cases out of twenty the word has reference to color, it is not the proper word to adopt. But to refer to the thing itself. If he would have preferred a straight, unbroken skyline, of course he is welcome to his opinion, but it does not follow that he alone is right. I maintain that the gable in the parapet is justifiable, accentuating, as does the pedimental doorway, the main entrance. The pinnacles, also, to which he objects are legitimate, as they stop the projecting cornices where we would not have had legal right to return them round.

I will refer to another stricture of this great critic. The coloring of the building, he says, is preposterous and vulgar, the wall being, he says, of dull yellow brick and the galvanized iron-work cream color. It is in the power of even far-away readers of this magazine to test this person's truthfulness on this point, since the walls are built of the Sayre & Fisher (of Sayreville, N. J.) "old gold" brick, one of the most beautiful bricks on the market. Not in any sense a "yellow" brick, but a rich golden brown. Not in any sense a "dull" brick, for the brick is burned so hard that it has a semi-glaze, and the metal-work is as near an ivory white as can be obtained for out-door work. Certainly this combination is not open to the charge of vulgarity. It would seem, however, that the wish was father to the thought, and that the same reasons which led him to select an insignificant building like this in Baltimore for an attack caused him to stray far beyond the limits of truth in order to try and show ground for his malignancy. As for the badness of detail, of which he speaks in a vague and general way, I cannot for that very reason of vagueness say anything. He of course is entitled to his views, such as they are; for myself I have no objection to have a full set of large photos of the details published, and an independent public form its own opinion, if the editor cares to do so.

The Designer of
"The Daily Record" Building.

[The only accusation made by our correspondent that seems to demand notice is that "a designed falsehood has been perpetrated" in the illustration "in drawing by hand on a photograph thick black lines." This is quite unfounded. Whatever retouching of the photograph was done, was done that it might be more effectively reproduced, and was done without the knowledge of the author of the criticism. Neither was the author aware who the architect was.

For the rest, readers of the criticism and of the architect's letter may be left to a consideration of their several positions, with the aid of the illustration.—ED. ARCHITECTURAL RECORD.]

RAYMOND LEE.

CHAPTER XI.

THE BOOKSELLER'S DREAM.

OPPOSITE the west entrance of the cathedral stood a row of stores—six or seven low, two-story, brick, box-like buildings, inhabited by some of the smaller tradespeople of Eastchester, where widow commerce, which deals in small articles of millinery, children's confectionery and such things, was carried on. These houses had existed for at least three-quarters of a century; but right in the centre of the group was a "survival" of still earlier days—a low, stooping building, fully one-half of which was a steep, slanting, rickety roof, pierced by two small dormers. The latter were capped with little cock-eyed gables which had become very much awry during the great number of years in which they had looked up at the towering cathedral opposite. The entrance to this ancienter building was below the level of the street, down a couple of uneven stone steps. Over the low, dingy, shop window was a much-weathered sign, which read:

ISAAC WART, BOOKSELLER.

And, to remove any doubt about the veracity of the legend, in the window was a disorderly jumble of old dusty volumes. Descending the two steps and entering the low door on which a loose bell jangled to give warning, a visitor found himself in a gloomy store, surrounded on all sides by a disorderly collection of books, pamphlets, and magazines, ranged on shelves against the walls, piled carelessly on the

floor—for the greater part, the dead literature of half a century and more ago. I have spent many a half-hour in Mr. Wart's store, though it is so melancholy a place for a scribbler, and, in a spirit of fellowship and respect for the dead, as a sort of rite which an author owes to the departed, I always purchase at least one of the old volumes there, and I have set apart on my bookshelves a space for a little mortuary chapel where these ancient 4to., 8vo. and 12mo. mummies repose—in peace. Perhaps, some day, some kindly spirit will do for me the pious office which I have performed for "The Posthumous Works of Mrs. Chapone; containing her correspondence with Mr. Richardson, on the subject of Parental Authority and Filial Obedience, etc. To these is prefixed an Authentic Life of the Author, drawn up by her own family;" "The Tablet of Memory; A Treatise on Self-Knowledge, by John Mason, A.M., very beautifully printed by Ballantyne;" "Sacred Biography, or the History of the Patriarchs, by Henry Hunter, D.D.;" "The Miniature, being a Collection of Essays upon the most interesting Subjects, upon the Plan of 'Microcosm,' by Gentlemen, at Eton College;" "The Poetical Works of Hector MacNeill, Esq.;" "Les Amours de Catulle, par M. de la Chapelle, Avec Approbation et Privilege du Roy." The—But why enumerate the unknown? Melancholy Brotherhood of the Forgotten; I wonder whether your shades hover gratefully over my bookshelves?

Isaac Wart, himself, was an antiquity, like his books—an aged, dwarfish being whose shrunken, malformed legs compelled him for the most part to wheel himself about in a low chair. Every one of his bodily members seemed moribund, except the small, quick, dark eyes under the black skull-cap which he always wore, and his long, white, corpse-like hands into whose nervous motions, apparently, all the physical life of the man passed as all his mental activity did into his eyes. For more than twenty years, Isaac Wart had lived a mole-like existence in the perpetually dim light of his store. On the rarest occasions only did people see him wheeling himself about in the street. As one may easily understand he was a notoriety in Eastchester. Everybody spoke of him as "old Mr. Wart," but they knew nothing

about him. He sold books, and lived with his sister, an elderly person, and her young daughter, his niece—that was very nearly all the information they possessed.

Nearly two months after Winter's visit to the Smeltham schools, Mr. Wart was seated in his wheel-chair in the rear of his store, directly under the small glass skylight, through the dirt of which filtered a dull, gray light. A little table by the bookseller's left elbow was stacked with opened books. He was bent, writing impetuously, using his knees for a desk. As he covered a sheet of paper with cramped, jerky characters, he tossed it hastily to the floor.

In the gloom of the store, a small, pale-faced girl, with a little black pigtail down her back, sat on a large book with her hands crossed on her lap. She was "watching shop;" and her melancholy, violet eyes were fixed now on her worn, rusty, brown shoes, now on the wall-shelves opposite her, seeking some resting place for her attention. Presently the door of the store opened with a jangling of the bell. A young, fair-haired man in shabby, pinching clothes, entered. The girl's face brightened. The old man glanced hastily at the newcomer.

"Oh!" he cried, querulously. "I *wish* you could come in without setting that bell ringing so. It drives away my ideas (his voice dropped to a whisper) as church bells do devils."

The dwarf threw back his head, his eyes closed wearily, and his bony, white fingers began to tap nervously on the arms of his chair.

Without saying a word, the young man went over to the girl. She quickly slipped her hand into his and pulled him through a door into a dark, narrow hall which ran to the rear of the house.

"What do you want, Mag?" the young man asked.

"Mama wants you. She's in the kitchen washin'; but first come here, I want you to see my flower."

"Where is it?"

"Out in the yard."

The yard was little more than a damp, paved passage-way hemmed in by buildings.

"There! Ray. Isn't it growing nicely? How soon do you think the flower will come?"

She threw her head to one side and looked up to the young man.

The plant under consideration consisted of a couple of green sprouts in an old tin can. The girl had placed it on a window-sill to luxuriate in the dull light of the yard.

"Why, Mag, that's an onion!"

Mag objected to the tone of disparagement.

"Well," she said, pouting, "I know it is. Onions have flowers."

"I don't know, Mag; perhaps they do, botanically speaking; but I'm afraid if they do, the flower isn't the sort you're looking for."

The young man put his arm around his companion.

"Ray, you never know anything I want to know, only what uncle wants. I'm sure it has a flower. Haven't you ever seen any?"

"No, Mag," said the young man, smiling, "I have never seen an onion blossom, never seen one growing anywhere, never seen anyone wearing one."

"Come to mother."

"I will inquire all about the habit of the onion for you, Mag, and if it doesn't flower properly, I'll see if I can get you some plant whose behavior is fit for a young lady's garden."

"But you have no money, Ray." This was said very sadly.

"If I tell some good gardener what a nice little girl my Mag is, don't you think he'll send her a flower? Where is your mother?"

"Talking to herself in the kitchen. I heard her as we passed the door."

The kitchen was a half dilapidated, scantily-furnished room, strung with clothes-lines, on which were a number of pieces of damp linen. In the centre of the room, bending over a big wash-tub, amid steam and soap-suds, was a haggard, elderly woman. Her back was turned to the door. She did not see the two enter. The girl crept a step or two into the room. The woman at the wash-tub paused

in her work to brush back her dishevelled hair from the perspiration on her forehead.

"No," she said resolutely, addressing some invisible person in the corner of the room. "I will not stand it any longer, Isaac. Not a day longer. I have served you faithfully, God knows, since poor Edward died. I tell you we are starving slowly. My little one isn't nourished. She is getting pinched: and look at these."

The poor creature pathetically extended her bony, red hands.

"Mama," cried Mag, alarmed.

The voice startled the woman.

"Dear me, Mag! how you frighten me."

"Here's Ray."

"Mag said you want to see me, Mrs. Finn."

"I'm getting so blind, Mr. Lee, I positively can't see. I didn't know you were in the room. Yes, I did want to talk to you. Dear! dear! somehow it gets harder every week to do these few things."

"Let me help you. I can do it," said the young man.

The woman smiled.

"Nonsense, Mr. Lee, a man do washing! I know you would, though, if I'd let you."

"Why not? I think I'll put out a sign, 'Raymond Lee, washerman; washing done here.' Wouldn't that read well? Eh, Mag? It would pay as well as bookselling."

"Yes, indeed it would," cried Mrs. Finn, energetically. "That reminds me, Mr. Lee, what I wanted to speak to you about. The new landlord was in again this morning, and Isaac had the old tale for him—Wait—Wait. Mr. Pilgrim is a kind...."

"What name was that—Pilgrim?"

"Ye-es; why?"

"Nothing. The name is uncommon, and...."

"Oh! yes. I was saying he seems to be a nice gentleman. He's a writer or something of the sort himself, and all he says was 'Hurry up with that book of yours, Mr. Wart.' But patience will break," she continued sadly; "it will break like everything else. The rich may humor a fancy once in a while, but in the end they want their own, like

other folks. I don't know what Isaac is going to do. The poor-house would be better than this. At least, we'd get enough to eat there to keep body and soul together. But I have made up my mind. I'll leave Isaac. I'll take Mag away somewhere. I can do *something* for a living."

There were tears in the woman's voice.

"No, no; don't think of that, at least not just yet. We will find some way to improve matters."

"Why doesn't Isaac use that three hundred pounds he's got? What's the use of keeping it? We made a living here once, before he got lost in that scribbling of his. He pays no heed to the shop now. You know, Raymond, there's nothing in it that any one wants to buy, and it's no wonder that we sell nothing. Why doesn't he let you have one hundred pounds to get some new stock? It would come back to him, and more, too; and we wouldn't be in debt, soaking old crusts, as we did this morning for breakfast. I told Mr. Pilgrim of it, and even he shook his head and said it was hard."

"So it is," said the young man, sadly.

The woman continued her washing. Little Mag began to cry.

"Crying's no use, is it Mag?" asked Raymond.

"No," sobbed the girl.

"Well, then, you and I won't cry. You stay here while I go and talk with your uncle."

When the young man entered the store he found the old bookseller still reclining with his eyes closed. He approached close to the chair before he spoke.

"Well, Mr. Wart," he said kindly, "how have you done this morning?"

The bookseller opened his eyes slowly.

"Ah, Raymond, my boy," he said affectionately, taking the young man's hand in his. "I think I have been half asleep, dreaming." Then in a sadder tone, "Dreaming, am I dreaming, Raymond? Am I to awake by and by and find we have been fools with our hopes?"

Raymond was silent.

"No, no," cried the old man. "I don't think ours are

the hopes that deceive, Raymond. Surely the work is too great for failure? It is needed so much. I had a dream last night, Raymond"—the old man's eyes brightened and his voice softened and became even musical. "How bright it was! The moonlit shore, the purple sky, the waters like a sapphire mirror. I felt young as I did long ago, though I knew I was bent as I am, carrying this old humped back. In my ears there was an ecstatic voice: Thought singing to herself on the confines of her world; Plato's: 'The sound of the flute in the ears of the mystic.' A ship of opal, lit by the moonlight, sailed out of the horizon. I could see the iridescent hull beneath the dark water; and the sails were a blending of ever-changing colors. A young man like yourself, Raymond (the bookseller was holding his young friend's hand tightly in his), whose head was garlanded, whose spiritual presence was like yours—love and promise—beckoned me with a golden lamp. I sailed away into morning sunlight, so exquisite, Raymond, oh! so unlike our day. (The old man's voice was vibrating and quickening under the stir of excitement.) A land of green olive trees, of mountains hazy in the distance rose before us, and as our boat touched the shore music swelled in cadences along the strand like waves. The joy, Raymond, as I stepped to land! It struggled in this old crooked frame of mine. The paternoster which the world has forgotten was wrung from me. (The dwarf outstretched his withered hands.) 'Beloved Pan, and all ye other gods who haunt this place, give me beauty in the inward soul, and may the outward and inward man be as one. May I reckon the wise to be the wealthy, and may I have such a quantity of gold as none but the temperate can bear and carry.' I was no longer the humpback, the bookseller, I was with the gods (the old man arose. It seemed to Raymond for a moment that his stature was increased) in the heaven of Beauty which mankind in these sorry times has lost. What does the dream mean? It tells me to persist. We can't fail, Raymond. God will complete his work. Man's life must be beautiful as well as good before it is perfect. One will not be less than the other n the consummation of Life. The forgotten gospel

must be requickened. Men must be brought to see that Beauty, as much as Morality, is the will of God; that it is not the heathenish vanity, the mere gawd, that it is with us to-day. Oh, if I were but twenty years younger, Raymond, and free from my infirmity, I wouldn't be preaching through a book. I'd be a mendicant priest of God, of *God*," he cried shrilly, "calling men again to Beauty. But I am an old lamp burning low. I can only write. When the book is finished you won't let it fail, will you, Raymond? All my hope is in you. Your life must continue mine."

"How much more is there to be done?" asked Raymond.

"Of the book?"

"Yes."

"About one-half. Sometimes I have doubts as to the result, but it is only for a moment. The appeal will surely touch someone. There are so many rich men in England. Every week we hear of some gift; fifty thousand pounds to some hospital; one hundred thousand pounds to some institution. No, I don't fear: we shall get the money for the beginning. The rest will follow. Where shall we build, Raymond?"

The dwarf rubbed his hands gleefully. His pale face was aglow with joy.

"It is hard to say. There are so many beautiful spots. I think I would prefer a high promontory on a rocky coast."

The old man was watching Raymond's face intently. He spoke softly:

"How the sea flows through your life! It is well. Let it flow through it with its changing moods and colors and many voices. It is God. By the sea would do well. First of all we would build our monastery; that would be needed first. We could construct it of sea-rock. It should be buttressed into the very waves. The ocean itself should inspire our architect. Eh? The walks and corridors and windows could all open on to the waters. And when we had gathered our priesthood together—true artists like true prophets bearing witness of God—and the young workers and the neophytes, how our buildings would grow in beauty; how the soul of the sea would pass into statues and carv-

ing, freize, pediments and capitals, and its colors into painting and tapestry and stained glass and inlaid walls of pearl and mother-of-pearl, and domes of pink coral like the sunset gathering into form; and its sounds into music from organs with pipes shaped like Triton's horn! What glory, Raymond! Temples and halls and cloisters where the devout could work, not for their own vanity, as the poor artist of to-day does, but for the glory of the Most High, where the multitude could come to worship, behold every new revelation of God, go down in solemn procession from the temples to the sea and be bathed in its beauty. That is the artist's life, the priest of the Beautiful. His work could go throughout the land like charms and sacred relics to banish the evil of ugliness. We can't fail, Raymond. I must get to work. I wonder whether three hundred pounds will publish the book?"

The dwarf's enthusiasm had caused Raymond to quite forget the purpose that had brought him from the kitchen. He was in close sympathy with the old man, who had befriended him in an hour of need long past, and Raymond did not perceive that it was this sympathy rather than real participation that had attached him to the bookseller's plans. The two had lived together for years, reading, dreaming and working with an enthusiasm which had surrounded their narrow circumstances with a wide horizon. As the old bookseller's life closed in upon him more and more, year by year, by reason of his deformity and age, he had escaped further and further from constraint or pressure into spiritual dreamland. The extreme isolation, the pale light in which Raymond had lived, had blanched his character as a flower—but it was a flower of purity, and it grew by the never-silent stream of memory which flowed out to the sea where a little fishing village slept on the cliffs.

Raymond was revolving in his mind whether he should speak at that moment to Mr. Wart about what had passed between him and Mrs. Finn in the kitchen. It was not an easy matter to decide what to do, for it is scarcely an exaggeration to say that the vitality of the old bookseller was derived from his work; and he believed that it was the three hundred pounds, scrupulously treasured for so

long from more abundant days, that gave the promise of reality and stability to his work. He used to say it was that three hundred pounds which would keep his work down on the publishers' earth, and prevent it from soaring about in the clouds of the author's heaven. To ask the old man to relinquish this money, even in part, or for a time, was to impair his hopes and deprive him of the one certainty which was like a cordial to him in moments of doubt and dejection. Raymond was aware of this, and, particularly after what had just occurred, hesitated before opening the subject. What could he say? How could he utter one word about the three hundred pounds without appearing to the old man as a traitor and conspirator?

The bookseller sat down on the floor and began to gather up the sheets of his manuscript. As Raymond assisted him the latter's thoughts ran round and round the problem, seeking for an opening.

The two were thus engaged when the bell on the shop door jangled, and Marian and Ralph entered.

"Customers," whispered the bookseller, looking up from the floor. "Go to them Raymond, I will finish this."

Raymond had been shop-keeper for so long that he advanced without hesitation to the newcomers. Due partly to pre-occupation, partly to the very dull light in the store proper, Raymond did not notice the faces of his visitors, until Marian, advancing to meet him, said:

"I am Miss Pilgrim. I would like to speak with Mr. Wart if it is quite convenient."

Coming from the bright daylight of the street, Marian could not see very distinctly, at first. The indistinctness, however, lasted for a moment only. Then her heart began to beat rapidly. Raymond's name rushed to her lips, but she did not speak it. In another instant her hand would have been in his. Raymond's attitude checked the recognition. Raymond's eyes greeted her at first without hesitation. The girl and the boy were again in the village on the cliffs. The next second his face was pale and he stammered:

"Oh! Mr. Wart, certainly; there is Mr. Wart. Mr. Wart, a lady wishes to see you." Marian's heart rebelled; but she moved towards the bookseller, who hobbled to meet her,

"Miss Pilgrim," said the old man courteously, "I am at your service. Will you permit an old cripple to resume his legs? I am helpless without my patient support. Raymond, bring Miss Pilgrim a chair; and your friend?"

"Don't trouble about me, thank you," said Ralph, who had been blind to much of what had occurred. "If you will allow me I will glance over these books."

Without a word, Raymond brought a chair as requested.

"Thank you," Marian said softly, as she took the seat offered.

Raymond withdrew to the door of the store and stood there gazing vacantly into the street.

Was it disappointment? sadness? a little pain? that spoke in Marian's voice when she said to the bookseller:

"The object of my visit is this, Mr. Wart: I am about to get some new books for the school in Smeltham, and papa said this morning that instead of sending to London for them we should do better to come to you."

"I am afraid not," replied the bookseller, with uncommercial frankness, shaking his head sadly. "My trade, you see, is now so small and I am so poorly informed about the market, that I shouldn't be surprised if you could do even better than I can. I would scarcely know where to look for what you want. I have been locked up here so long and have paid so little attention to what is going on—perhaps...." the old man hesitated.

"Pray continue."

"I was going to say, but I am not sure that I ought to say it, that Raymond—Mr. Lee—might go to London and get what you want, if it would be of any service to you. Whatever the books cost—but, no," the old man started up, "we have no money. No, I can't do that: what am I saying? Miss Pilgrim," he added, petulantly, "I am sorry, but you see I am really not in the book business any longer. I have no time, no money. You can do so much better yourself." The old man lay back in his chair, his eyelids twitching nervously over his black eyes.

Marian was confused for a moment. "Perhaps Mr. Lee," she said, her heart beating rapidly, "can help us."

"Yes," said the old man, wearily, "Raymond will help

you if he can. He has attended to everything here for years, but I have no money—no time. Raymond, can you help Miss Pilgrim? Can you direct her?"

Raymond left his position by the door and came to the back of the store.

"What did you say, Mr. Wart?"

"Miss Pilgrim, here, my new landlord's daughter, wants some books for her schools. Perhaps you know where she can get them?"

"What books are they?" asked Raymond, addressing the old bookseller.

"Here is the list," said Marian.

Raymond took the piece of paper and read it hastily. Marian's brown eyes were watching him he knew, and it is scarcely a metaphor to say he felt her presence.

"I think I know who the publishers are of some of these. It would be easy, I'm sure, to get them all in London"

"Couldn't *you* get them for me? It would be a great assistance."

Raymond hesitated.

"We have no money, Raymond," said the bookseller in a slightly querulous tone. "No one will trust you. And the expense of going to London!"

"Oh, I will pay the expense," interrupted Marian, "and as to the books, I will gladly pay for them also at once. We have already some of all of the books on the list, but not enough. A friend bought them for us in London and I don't want to trouble him again if I can avoid doing so."

"Well, well," said the old man. "If Raymond will go to London I suppose he can do it; but I am afraid you will pay more than if you sent to London for them yourself."

"I think not," said Marian, cheerfully; "besides," she added, smiling, "papa says the people of Eastchester should buy what they want in Eastchester. You will get me those books, Mr. Lee?"

"Yes," said Raymond, keeping his eyes on the list, "if Mr. Wart...."

"The most expensive of the books on that list I know cost four shillings. We will suppose they will all cost four

shillings, and I will send you the money when I get home. Will that do?"

"But that will be too much," said the bookseller.

"That is a good fault. You can return to me whatever there is over. How is Mrs. Finn and little Margaret? You remember they visited me once some time ago?"

"They are well," said the old man. "Quite well, thank you."

"Are they busy?"

"No. Raymond won't you call...."

"Don't trouble to do that, Mr. Lee; if I may go to them...."

"Certainly," said the bookseller, anxious to be parted from his visitor; "Raymond, will you show Miss Pilgrim the way?"

Raymond conducted Marian to the kitchen and, without a word, returned to the store.

Mrs. Finn was still busy over the washing-tub and Mag was poking a very ashy fire with intent to urge a dilatory pot of water to boil.

"The fire 's nearly out, Ma—Oh, here's Miss Pilgrim!"

"Law! Miss Prilgrim—get a seat Mag; not that, a clean one. It's good of you to come here," exclaimed Mrs. Finn, in a disturbed way. "You must excuse the looks of the place Miss—I...."

"Don't speak of it. You are busy I see. I came to see Mr. Wart, and I couldn't leave without seeing you and Margaret. Could I? I want Mr. Wart to get some books for me."

"Miss Pilgrim, it's no use," said the woman, changing her voice to a despondent key. "Isaac won't do it. He's hoarding that three hundred pounds like a miser, and he won't spend a shilling of it, no, not if it brought back a hundred. He's brought us almost to starvation, and I don't know what I should have done long ago but for Mr. Lee."

"Yes," said Marian softly. She added, "he is going to get the books for me. He has been with you a long time?"

"Let me see," said Mrs. Finn, drying her hands on a very damp apron, "it is seven years now since he came here. Isaac, you know, met him in London, in the streets I think. He found out he could read French or—what was it, Mag?"

"Greek," answered the girl.

"Yes, that's it, Greek, and brought him home here, and he's been with us ever since. Isaac could not do without him now. Really I don't think he could, Miss Pilgrim. There is something they're doing together."

"Yes, papa has spoken to me of Mr. Wart's book. Mr. Wart is very anxious about it."

"He's lost to everything but it, Miss. He has forgotten us. He used to love Mag, but now he has scarcely a word for her. We should have starved or gone to the poor-house but for Mr. Lee."

"He has been kind to you?"

"If he'd been my own son he couldn't have been kinder. He's a thorough gentleman, Miss, too good for such as us; I mean me and Mag."

"Oh, no, I don't think anyone is too good for another, do you?"

"He has had some trouble with his family, I don't know what. Isaac knows, but he won't speak about it. He says it ain't our business. Isaac has no faith in women. He says they're like the wind, they carry everything they can and the lighter a thing is the more they can do with it."

"He doesn't mean all he says."

"Isaac is mean enough with women. You don't know him, Miss."

"We mustn't forget his affliction."

"Ah, never fear, Miss, he doesn't let anyone forget it. All of us have to wait on him."

"I know you have had a hard time lately. My father was telling me about you this morning. But now, perhaps, you and I can put our heads together and make things better. Shall we try? and first of all we must get Margaret here to school, so that when she is a woman she will know something. Eh, dear?"

"Raymond's going to marry me when I'm growed." Mag accompanied this speech with a little pout.

"Tush, child," said Mrs. Finn; "I'll box your ears if you talk such nonsense."

"Ray said so." The tears gathered in the child's eyes.

"It's just his nonsense," said the mother to Marian.

"Never mind, Margaret," said Marian, "a long promise often gets tired on the way, but if Raymond proves to be a false knight we'll find a—another one for you. Now, I must be leaving; Mr. Winter will be tired of waiting for me. I want you to come to see me to-morrow. You will bring her, won't you, Mrs. Finn?"

While Marian was visiting in the kitchen, Ralph was glancing in a very casual way at the bookseller's stock. Raymond had again taken a stand by the door. His feelings were as tumultuous as the sea which stretched before his mind's eye in the light of eight years ago. Old faces and scenes were rising before him. One form had suddenly stepped from the distance between him and them; could the others do likewise? The tide was again far out on the sands where the black rocks were, the sunset light was on the water, the little pools left behind by the tide in its retreat shivered under the evening breeze, and a voice sang in Raymond's thoughts:

> The sunset died in the sky, heigh-ho!
> The darkness crept over the sea;
> And the wind arose with a tale of woe,
> And laid its burden on me, heigh-ho!
> And laid the burden on me.

"The past was buried," thought Raymond. "I had got even so far from it as to live fully in the present. Why am I called back to it? Am I to go through that old struggle again?"

"What is the price of this book?" asked Ralph, who at that moment was standing behind Raymond?"

"Oh!" cried Raymond, "I beg your pardon, I was thinking. What did you ask?"

Raymond's voice startled Ralph. It was so like the voice he had heard at the doorway of the cathedral.

"I asked what the price of this book was, but pardon me if I ask you now; was it you I spoke to one night a fortnight ago as you passed out of the north door of the cathedral?"

Raymond hesitated a moment.

"Yes, I was there. Was it you that was playing?"

"Yes," said Ralph, "when you sang."

Raymond was confused for a time, then he said:

"I hope you will pardon me. I took too great a liberty then. I hardly knew what I was doing."

"Oh, it was not a liberty," exclaimed Ralph earnestly. "It was a great confidence, one I understand perfectly—perfectly. I cannot tell you how glad I am that I have met you, for I want you to...."

At that moment Marian returned.

"Mr. Lee," she said, "there is the list of the books. I will send the check to you this afternoon. I hope I am not giving you too much trouble."

"No, indeed," said Raymond, "it is no trouble."

Marian said "good-by," and departed with Ralph, who whispered to Raymond: "I will drop in to see you to-morrow"

Outside the store, Ralph's first words were:

"Do you know who that young man is?"

The question surprised Marian.

"Why—yes—" she stammered; "Mr. Lee."

"That is his name, I know; but I also have discovered something that will surprise you; it was he that sang in the cathedral the other night."

Marian had feared that Ralph's question was aimed in quite another direction.

"Oh!" she said, greatly relieved, "is that so?"

"You are very indifferent to the fact. I thought my news would astonish you, you were so anxious to meet the unknown the other night. You said you knew his nature from his voice."

"Did I? It was strange."

"How, strange?"

Marian did not reply.

Ralph perceived that she was preoccupied, and said no more.

When Marian arrived home she went upstairs into her father's library.

"You look fatigued, Marian," said Mr. Pilgrim, as his daughter seated herself and began to take off her gloves. "You are pale."

"Am I?" asked Marian, wearily. "I have a little headache."

"Did the old bookseller bore you to death?"

"No; he had little to say. Would you believe it, he fought hard against taking the order."

"He's a luny old fellow, Marian, I am afraid; but he is interesting, isn't he? Did he take the order?"

"No; not exactly." (Pause—the glove on the left hand was very disinclined to yield its position.) "Do you know who is with him, papa?"

"No, dear; who?"

"I want you to promise me that you won't recognize him unless he makes it plain that he wants you to."

"Who is this Sir Incognito?"

"Promise."

"Of course."

"Raymond Lee."

The obstinate glove was off, but it greatly needed stretching, and Marian was very busy with it.

"Well, well!" exclaimed Mr. Pilgrim, "what is he doing with old Wart?"

"He helps him in the shop and with his writing."

Pilgrim exclaimed again, but in a different tone:

"Well! I suppose he's....how many....why it's seven years ago since we were thrown on that Lee shore. I had almost fogotten him."

"Oh, papa!"

"Well, you know what I mean, dear, I haven't thought of him for some time. But why do you desire that I shouldn't recognize him?"

"I don't think he wants us to."

"Did you speak to him?"

"Yes; as a stranger. I could see he knew me, but he treated me as though we had never met."

A little disappointment was audible in Marian's voice.

"Well, what do you care?"

"Care!" Marian re-echoed the word, and arose and went toward the door.

"Where are you going, Marian? You haven't told me all."

"By and by, papa," she answered softly, "I have a headache."

She stooped and kissed her father and left the room.

Pilgrim again exclaimed, "Well!" in still another tone of voice, and after a moment resumed his reading.

CHAPTER XII.

MARIAN'S DREAM.

"OLD TOM," of Eastchester, tolled slowly and solemnly as befits a sentinel of Time crying to Eternity. Another hour had crept up stealthily to his post in the cathedral tower and escaped, laden, who can tell with how much, filched from human hearts and hands?

"Dear me," exclaimed Mr. Wart, arousing himself from a dog-doze in a corner of the front part of the store, "is that five o'clock?"

"Yes," answered Raymond; "five o'clock."

The twilight of the short December day had nearly given place to night, and the bookseller's store was illuminated only by the glow and the flicker of the grate fire.

"What are you two doing?" asked the old man, rubbing his eyes and peering through the darkness.

Raymond and Mag were busy in the rear room of the store, setting a table for a meal.

"Oh! Mag and I are going to have a visitor to-night," replied Raymond, laughing. "Ain't we Mag. No, no, don't put that plate there; already there are too many on that side; give it to me. Now, go and get the knives and forks."

Raymond's answer had not enlightened the bookseller. After a minute he asked again:

"What *are* you about, Raymond?"

"I'm getting things ready for tea; Ralph's coming to see us this evening. I want you to know one another."

"I do know him, Raymond," said the old man with emphasis, "though," he added in a quizzical way, "of course not so well as you do. He has had so much of your time for the last three months you must be firm friends by this."

Raymond was still busy at the table.

"Yes, we are," he replied. "I hope so."

"Any doubt?"

"No–o, I think not."

"Be *sure* of a friend, Raymond."

"Don't fear; if there is any doubt it is concerning myself."

For a while nothing more was said; then the old man spoke.

"What do you find to do together, night after night?"

"Play and sing and smoke."

"He lives with the Carrols, you say?"

"Yes, he has rooms there at the top of the house; he has furnished them to suit himself and has settled down, he says."

For some reason the dwarf was unusually inquisitive; as a rule he didn't pay the slightest heed to anybody's personal affairs.

"Settled down, eh! I understand his home is in America. What does he find to do over here?"

"Didn't you know that he is helping Miss Pilgrim in her schools? He has become her right-hand man."

"In hope of becoming her left-hand man, eh?" asked the bookseller, smiling.

"What do you mean?"

"The left hand is the marriage hand, Raymond."

The old man chuckled.

"Oh! I see what you mean." The tone of Raymond's voice changed. "Yes; Ralph hopes to marry her."

"Ah! If he has taken you into his confidence about that affair you must be close friends."

"Yes;" answered Raymond vaguely.

"And the young lady? What does she think of your friend? Both have money. I suppose they would make the modern 'safety match,' eh, Raymond; 'good match?'"

The bookseller laughed again at himself.

"Oh—yes; excellent. Why doesn't Mag come with those knives?"

Raymond opened the door and called:

"How much longer, Mag?"

A shrill voice came from the rear of the building:

"You've got to wait till the knives are cleaned. Ma's doing them now."

"All right; no hurry."

Raymond closed the door and sat down by the fire.

The bookseller watched him intently from his dark corner. The old man's thoughts evidently were still traveling along the same road, for after a while he asked:

"Raymond, have you ever spoken to Miss Pilgrim about —er—why you are here?"

"Not a word."

Raymond was gazing at the fire.

"But she remembers you, surely?"

"Yes; I think so."

"Has she never referred to your former acquaintance-ship?"

"No; never."

"Must not she think it very strange that you see her so often and yet say nothing?"

"I can't tell what she thinks. I wish I hadn't met her again."

"Why, Raymond; why?"

"Oh, it's all so useless. Dear me, I wish Mag would hurry. We shall be late."

"Useless," repeated the old man. "Come to me, Raymond; what is the matter?"—The dwarf's voice became as tender as a woman's—"You know you are my boy; the only gift I have left for you, Raymond, from the wreck of my life is advice, such as it is. Trust me. Is there anything troubling you?"

"No; nothing; nothing at all. Why?"

"You have been in a mental fever, my boy, for—well, the last month. There is a strain somewhere; it has got into your laugh. Raymond, you know you can't deceive the old man."

"I am not trying to deceive you."

"True, true; only passively, Raymond; you are hiding something. No, don't say a word for a minute, let me speak. There; I have no right to question. You are a man; let me see how old, twenty-five, isn't it? But to me, whose life is all behind him, you are a boy; doubly so, Raymond, because the sweet light of childhood burns late with you, and you know—ah, you can't know!—how that light has been to my old, dark soul, God's one great blessing. I love you, Raymond (the old man folded the younger one in his arms) as Saul might have loved David, because he brought to him the beauty of the fields and the freshness of life, and better than all a new light on the horizon. Do you wonder if I am curious when I see something strange creeping into your life? I fear any change. I will tell you what I have thought:"—the old man fixed his eyes on Raymond's—"Can it be that—Miss Pilgrim....?"

There was no need for further words.

"Yes," cried Raymond. "Hush; I love her. I wish I didn't. I'm a fool...."

"Here are the knives," cried a little voice.

"What, all cleaned," said Raymond. "Well; we must hurry or the table never will be set; will it, Mag?"

Mag did not reply.

The preparations, however, were all completed long before Ralph arrived. The fire glowed and sent the flames dancing up the chimney as though it expected company; indeed, no greater mistake can be made than to regard a fire (the free, open fire I mean, not the miserable substitute caged up in the cast-iron stove) as inanimate. No one who has once begun to discover all its moods or feel all the warmth of its poetry, or who has been under the spell of its playful fancies and sparkling humors, or accepted its endless invitations for reverie and meditation, or commenced to explore the wondrous hills and valleys of its glowland, or track its ever-changing phantasies, would make any such mistake. That evening, the fire in Mr. Wart's parlor divined more than Raymond knew, and if the young man had not been so blind he would have perceived that it possessed a secret, from the exuberant way in which it sparkled on every bright spot on the tin kettle, forcing the usually

very self-contained old fellow on the hob to purr till his sides shook. Besides, it tickled the plates which Raymond had put in the fender to get warm, until they laughed and were brighter than Dresden china ; it weaved a glow into the common tablecloth, finer than the patterns in the finest damask ; it gilded the pewter forks and drew fantastic designs upon the faded antique paper on the walls, quite beyond the fancy of any draughtsman. It even drew old Mr. Wart out of his corner. The dwarf wheeled himself into its warmth and light.

"Ha, ha," said the old man, rubbing his long, white fingers, "this looks cosy, Raymond ; tea, muffins, eggs...."

The store bell jangled. Raymond jumped up from his reverie and his face brightened.

"Well, Ralph," he cried, hastening into the dark, front part of the store, "I thought you weren't coming."

"Ray, I felt this honor was more than I was entitled to alone, so Miss Pilgrim kindly consented to help me out."

The fire, who, beyond doubt, had expected the unexpected visitor, lit up Marian's face and the brightness in her eyes as she came forward and offered Raymond her hand.

"Mr. Lee, I hope you won't build too much on any statement that bears on Mr. Winter's modesty. The truth is, I have promised Mrs. Finn several times to come to take tea, and when Mr. Winter told me that you were going to be chief cook to-night, curiosity was too strong, and I insisted that he should take me with him. I told him I was sure I could make my apologies to you."

There was a slight tone of audacity in this speech ; something of a happy air of confidence which touched Raymond, and compelled him to sympathize with it.

"I am all the more pleased," he said, laughing, "if Ralph has got nothing to do with this visit. So, I am sure, are Mrs. Finn and Mr. Wart."

At the mention of his name, the old bookseller advanced a little in his wheel-chair.

"Miss Pilgrim," he said, "I wish we could tempt you here like this more frequently. Your visits usually are like the angel's, always unawares, when we are in need. Light the

lamp, Raymond. Miss Pilgrim and Mr. Winter, won't you make yourselves as comfortable as you can?"

The dwarf evidently was beginning to fall under the spell which the fire had been keeping. The old man's humor brightened, and he climbed out of his chair and hobbled about the room with an alacrity he seldom displayed.

"Let me take your hat and jacket, Miss Pilgrim. I am the only old rat here that knows the safe corners for things."

"Please, Mr. Wart, won't you let me have my way this evening?" asked Marian, with mock seriousness.

"My dear young lady," said the dwarf, laying his hand on his heart, "I will personally guarantee that everyone here shall be bound to you as a slave. If I see the slightest disobedience, I swear I will become an ogre."

"Well," said Marian, "I want you to allow me to look after myself just as though I was at home, and (turning suddenly towards Raymond) I want to toast those muffins."

"If I'm to be chef," said Raymond, laughing, "I must not be interfered with."

"Obey, Sir," cried the dwarf, feigning fierceness. "Not a word."

"I want to be only an assistant to your highness," pleaded Marian, addressing Raymond. "I will be obedient."

A delicate ear would have detected something of tenderness in the latter sentence.

Marian put her hat and cloak aside on a stack of old books and seated herself on a low stool before the fire.

"Now, Mr. Chef, if you are ready give me the fork and let me begin, for there are two, four, six, twelve to be done, and I know we are all hungry."

While Raymond made the tea and boiled the eggs, Marian toasted the muffins. She impressed Ralph into the service of getting the meal ready and kept him busy handing her "the butter" and "another plate" and "the butter again." Ralph had never seen her so vivacious before. Her face was bright with pleasure, and when the fire had deepened her color, as though the sorcerer had made her

blush by telling her secrets, Ralph was struck with the subtle heightening of her beauty. Was it the wondrous light of Love that glowed in the sweet face of the little nun of Eastchester—the light of the human annunciation, the divine accession to our common nature?

Mrs. Finn, who had been busy straining the resources of her wardrobe in honor of her visitors, joined the party, very red, very nervous.

"And Mag; where is Mag?" asked Marian, after greeting the worthy matron.

"She is in the kitchen; I can't get her to come. She's sulky about something, and as obstinate as a little mule. I told her I'd give her a good wippin' if she doesn't change her mind and come in very soon."

"Oh, I'll go and fetch her," said Raymond.

"No; let me, please; I know the way," cried Marian, hurrying into the hallway.

She found Mag crying quietly in the kitchen with her head on the table, under the dim light of a tallow candle.

Marian put her cheek against the girl's face and whispered kindly:

"Why, what's the matter, dear? come."

The child threw her arms wildly around Marian's neck and burst into a paroxysm of sobs.

"Oh, he loves you; I heard him tell uncle he did. Oh, oh," she cried.

"Why, child, what are you saying?"

"Oh, Miss Pilgrim, Ray lo–oves you; he said so–o this afternoon."

Marian's arms suddenly tightened so firmly around the child and Marian's lips pressed so hard against her forehead that Mag was so astonished that she ceased crying and regarded Marian in wonderment. Marian's face was pallid. After a minute she said, in a broken voice:

"Mag, dear, I want you to promise me that you will not say to any one what you have just said to me."

"Ye–es," Mag replied, alarmed at her elder's serious tone.

"It would pain me very much if I should find you had told anyone. You will surely keep your promise? Kiss me and say yes."

"Yes, Miss Pilgrim," said Mag, the tears rebelling again. "I like you, you are so kind."

"There, there, don't cry; you shall come and stay with me for a little while and we will go to London together in a week or two. Now, come, let us go in and have tea. Sit beside me at the table. Dry those eyes, they are as big as buttons."

Mag smiled. The new prospect pleased her.

"Well," exclaimed Ralph, as the two entered the store, "we were just going to send to find out if our little friend here had perverted you."

"She is a bad girl," Mrs. Finn said bitterly, scowling at Mag.

"No, Mrs. Finn, she is not," said Marian, in a conciliatory tone. "Mag and I were telling one another a secret, and we couldn't come any sooner."

I know nothing of the long history of the building which old Mr. Wart inhabited, but I feel sure a pleasanter meal had never been eaten in it than the one that evening. The dwarf, so long restrained by the repression of poverty, expanded at the touch of sociability. It recalled happy times in the past, and put out of sight for the moment his straitened condition. A dignity and courtliness of manner which had been hidden for years, like the remnants of an old finery, revealed themselves, particularly in the dwarf's attitude towards Marian.

"It is seldom, indeed," he said, "that the princess visits us. I wish we could do something to cause her to remember it."

"Don't fear, Mr. Wart, the princess will never forget it."

There are moments when one's nature is like a light that throws a radiance around the person. It was so with Marian that evening. Her quiet exhilaration imposed itself upon the others. The dwarf watched her keenly. "The princess is in love," said he, mentally, "the rose is unfolding itself to the sun. No wonder you are disappointed, Raymond, that girl will not love, but worship."

Ralph was noisy and happy. He was glad to see Marian enjoying herself. He told stories about his college days

and his life at home in America. Though Raymond was quieter, he was not less happy, and when the conversation turned, as it did after a while, in a serious direction, he begged the dwarf to give Ralph and Miss Pilgrim an account of the work he was doing and the hopes he entertained. On that subject the old man was a rhapsodist. Marian listened with interest that deepened as the bookseller unfolded his dream. The story had something like music for her feelings at that moment.

"And," said the old man, affectionately, as he concluded, laying his hand on Raymond's head, "here is my light and my hope."

Raymond dissented. For a moment all were too moved to speak. After a while Marian said quietly:

"That is beautiful, Mr. Wart, only I wish it were not so remote from what is to-day; and don't you think you should make some place in your plan for that other side of beauty which is Christ's?"

"Ah," said the old man, significantly, "I have much to say on that score. That has not been overlooked though it has been omitted. Some day, if the princess is interested, I will talk the matter over with her."

When Marian and Ralph started for home the dwarf and Raymond waved good-by to them from the steps in front of the store. The heavens were flooded with moonlight, the quiet streets and the cathedral were silvered, the stars burnt like diamonds in the still, clear, winter sky, and something in harmony with the vastness, the peace, the beauty of Nature was in Marian's soul.

"Ah," said the dwarf, as he entered the store with Raymond, and closed the door. "I don't wonder you love that girl. The man who gains her will win something more than the kingdom of Love itself. She has the genius of affection, and mark, northern as it is in some respects, her love is oriental in its softness, color and warmth. Love will paganize her christianity."

"Nonsense," said Raymond, whom the old man's words made uncomfortable.

"Trust an old man's opinion," said the dwarf. "I will give you two texts descriptive of our princess's love; one

you know well: '*Entreat me not to leave thee, or to return from following after thee, for whither thou goest I will go and where thou lodgest I will lodge, thy people shall be my people and thy God my God.*'"

"That is not pagan," said Raymond.

"It is," said the old man, emphatically, "although it is in the Bible. However, about the second there can be no doubt; it is from Euripides' Andromache. Do you remember where Andromache cries: '*Ah, my dear Lord Hector, for thy sake would I even forgive my rival if ever Cypris led thee astray, and often in the old days have I held thy bastard babes to my breast to spare thee pain.*'"

"That is pagan." said Raymond, smiling faintly; "but I don't think you know Marian."

To be continued.

NEW BOOKS.

English Cathedrals. By Mrs. Schuyler Van Rensselaer. With illustrations by Joseph Pennell. New York: The Century Co. 1892.

Advanced Building Construction. A manuel for students. By the author of "Notes on Building Construction." London and New York: Longmans, Green & Co. 1892.

Mrs. Van Rensselaer's papers on the "English Cathedrals" are familiar enough to the readers of the *Century*. For some time past they have been among the principal contributions to that excellent magazine. Advanced in this way for consideration as ephemeral contributions they were satisfactory, if not sufficient. They were "popular" enough in tone and matter to interest the great multitude of the incipiently cultured who shrink from an acquaintance with knowledge in her severer moods, and yet they possessed sufficient charm, fullness of reach and substantive value to be entertaining reading to the professional man. The papers, however, were not of the kind that by any mere revision, correction, exclusion or binding could be lifted above the plane of good magazine work. In other words, they lack the solid value that would rightfully entitle them to a permanent place in the library. From this the reader will infer that the book can be of little real service to the architect or the architectural student, and, indeed, obviously it was not written for either. We doubt very much whether the publishers would have made this second appeal to the public, but for the illustrations which Mr. Pennell has interpolated into the text, and for the new fashion that has lately reached alarming dimensions of presenting books to one's friends at Christmas time, of value only for the extrinsic qualities of fine paper and showy binding. Of Mr. Pennell's drawings there is little to be said but praise—save from the architect's point of view. To the latter, Mr. Pennell's illustrations are valuless as media of information. In them the architecture is (if we may say so) de-architecturalized as much as possible and merged into the picture as part of a landscape. But to all this it may be objected, with justice, that it is not fair to find fault with a book for not being something other than what author and illustrator intended it to be. Both have very successfully accomplished what they set out to perform, and if we are asked to receive their work a second time in a more serious guise than when it first appeared, it is better to pay small heed to the request than to criticise. With the qualifications indicated in the foregoing, Mrs. Van Rensselaer has done her work well. The information she gives is accurate, and she is not so burdened with it that it is presented without charm or ease. The only exception we would make to this is in the frequent comparisons she has felt constrained to make between English Gothic and French Gothic. She seems to be afraid that the reader may go too far in his admiration for English work. She reminds him continually that there is better to be found in France; that French Gothic is far more logical on the constructive side. In all this there is an air of a newly-learned lesson, and if we mistake not the author's teacher was Mr. Charles Herbert Moore.

"Advanced Building Construction" is an abridgment of Part II. of "Notes on Building Construction," the well-known work arranged to meet the requirements of the Syllabus of the Science and Art Department of the Committee of Council on Education, South Kensington. It is a book for students who have advanced slightly beyond the first elementary stage. To such it supplies a wide range of information in the form of succinct notes, with illustrations of nearly everything that can be illustrated to any real purpose. The fault we find with the book is that it lacks constructive progression. It offers the learner a great many facts, much valuable information, but it lacks the vivifying touch of a synthetical principle. To a good treatise on building it holds the same relation that a dictionary of architectural terms does to a work on architecture. Indeed, it really is a dictionary of building processes, materials and devices arranged under general headings instead of in alphabetical order. The information is not always very profound as may be instanced in this definition or description of tin: "Tin is used for lining lead pipes and for small gas tubing. It is very soft, weak and malleable, and more easily fusible than any other metal." This is not very comprehensive nor very enlightening; indeed, as a description of an important and much-employed metal in the building trades it is "very soft, weak and malleable and more easily fusible than any other" description we have yet met with in a book intended for "advanced" students. The work, of course, adheres to British practice, which may be and no doubt is adequate to British conditions. Different conditions prevail in the United States, and in many particulars our practice differs greatly from that of our cousins. Consequently, this book needs to be read with reference to American practice, and corrected or amended where the practice of the two countries differs. It is asking a little too much to require even the "advanced" student to do that.

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Suggestions.

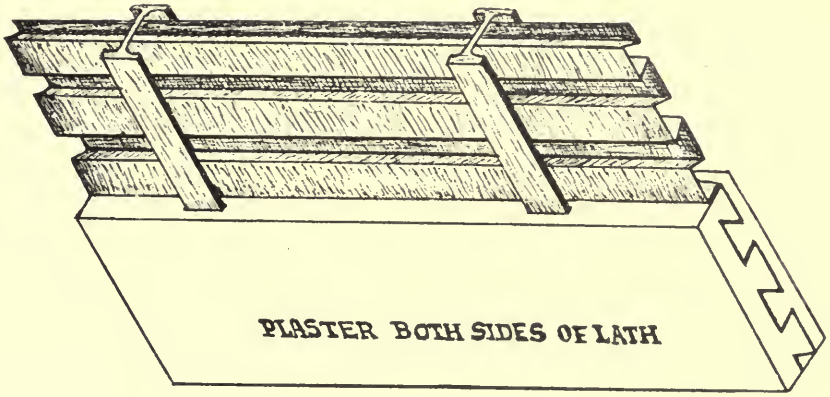


E are gathering together in this Department a number of Suggestions as to the best materials, devices, appliances, and the finest artistic and decorative productions in which the **Architect,** the **Builder,** and the **Home Maker** are interested.

Rock Wall Plaster in Fire-Proof Construction.

ROCK PLASTER in addition to its other qualities has found very extended use for its fire-proof qualities in the modern public building. The tendency of the day is to insure against loss of life on account of fire in buildings by making them as near fire-proof as is possible. It is not only from this standpoint but that of a purely business one, of saving in insurance, that leads to the modern fire-proof building. Even in frame dwellings, ROCK PLASTER is recognized as being a remarkable fire retarder when placed on wooden lath. The plaster being carried to the floor, will protect the lath and studding until such time as the fire has practically burnt through the floor, and within this time the fire department can generally reach the fire and get it under control.

When ROCK PLASTER is placed on metallic lath, it affords a barrier against which fire makes but little progress. Modification of this feature of fire-proofing is shown in the cut given of a 2-inch fire-proof partition.

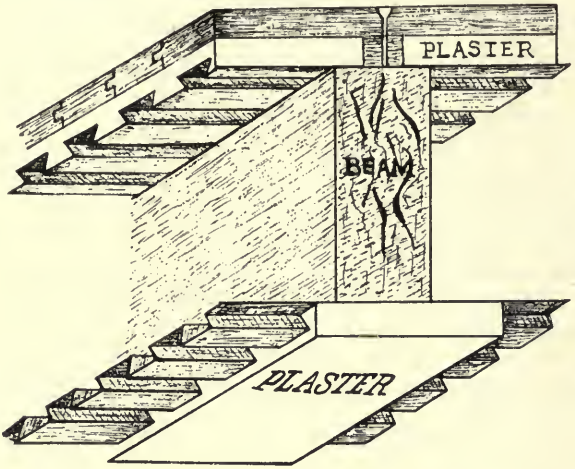


FIRE PROOF PARTITION 2" THICK

This partition is made by the use of metal lath on channel iron studs, which when finished are 1½ inches to 2 inches in thickness, as the case may be, and then plastered on both sides. A partition of this kind, as will readily be seen, possesses great superiority over other forms of fire-proof partition, as it is a great saver in floor space; costs less than hollow tile; possesses enormous strength; is an absolute non-conductor of sound; will not crack or shrink; rats cannot gnaw through them, or will they harbor vermin, noxious gases or germs of disease (they are therefore of great value from a sanitary standpoint), and in addition are thoroughly fire-proof. The great saving in weight is also a great feature of this partition.

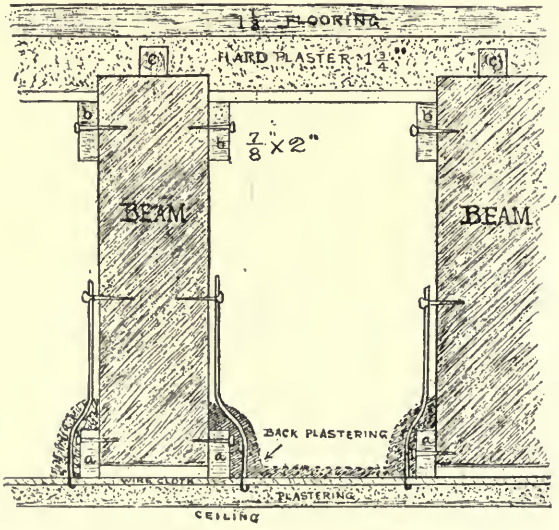
In a modern office building the ROCK PLASTER portion is a wonderful improvement in fire-proof construction. In wards in hospitals, also, this partition is extremely serviceable.

Another use for ROCK PLASTER on metallic lath is for use in casing for staircases, elevator shafts, etc., also for fire-proofing between floors and protecting iron or wooden beams, as shown in cut No. 2.



Mr. Moore, who is the President of the Continental Fire Insurance Company, has written a very able work on fire-proof construction, and we are indebted to him for the cuts given.

Metallic lath is placed as shown in the cut, just over and under the beam and is then plastered. Plaster ceiling is applied to the lath from beneath and solid plaster filling plaster to the upper surface nearest the flooring. On this the 1⅛-inch tongued and grooved pine floor is placed. Mr. Moore states that this method of construction compared with common construction would command double the ordinary line of insurance at one-third less rates.



In cut No. 3 will be seen further methods of using hard plaster for the protection of beams.

These and other uses of ROCK PLASTER in fire-proof construction are commanding widespread attention, and when once this material has come into general use there will be considerably less danger on account of fires.

ROCK PLASTER, "ENAMELLED.'

This form of ROCK PLASTER is obtained by applying the regular Scratch and Browning coats on any kind of lath (wooden or metal), then applying the finish coat and marking this off into 6-inch tiles (or such size as may be desired), and when dry, enamelling with "ROCK PLASTER ENAMEL." By this means a tile wall is obtained at the cost of about one-tenth the cost of ordinary tile, and it will prove just as serviceable. This form of ROCK PLASTER is especially adapted for wainscoting in bath-rooms and kitchens, and for walls in hospitals, where it is desired to wash them or disinfect with acid solutions.

OTHER FEATURES OF ROCK PLASTER.

ROCK PLASTER is put up one hundred pounds in a bag, ready for use by the simple addition of water, no sand or other substance, except water, added at the building. It can be mixed in a box on the floor where it is to be used, consequently it can be used in all kinds of weather and plastering goes on without any delays at all. It saves time in finishing a building, as the carpenters can follow immediately after the plasterers, and when the building is once plastered with ROCK PLASTER it does not need to be patched every few months, as the plaster is practically indestructible.

ROCK PLASTER is not only for the more expensive kind of houses, but people who can least afford to do without it are those who are building modest homes, and who, when once have made their outlay for putting up a building, cannot afford to be continually spending money upon repairs. ROCK PLASTER is very little more expensive than ordinary mortar, and the difference in expense is more than made up in the short time by the saving in repairs. For further information send to the following :—

CONSOLIDATED ROCK PLASTER CO.,

1204 Chamber Commerce, Chicago. **44 Broadway, New York.**

ROCK PLASTER CO., CHICAGO,
1204 Chamber Commerce, Chicago, Ill.

ROCK PLASTER CO., NEW YORK,
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ROCK PLASTER CO., BROOKLYN AND NEW JERSEY,
Arbuckle Building, Brooklyn, N. Y.

ROCK PLASTER CO., SEATTLE,
Seattle, Wash.

ROCK PLASTER CO., ROCKFORD,
Rockford, Ill.

ROCK PLASTER MFG. CO., Columbus, O.

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ELEVATOR ENCLOSURE AT HOTEL SAVOY.

Fifth avenue,
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STAINED GLASS,

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FRAGMENT OF THE HOWLAND MEMORIAL
THE CHURCH OF THE HEAVENLY REST

Extract from Year Book: — "It was not only designed, but also its cartoons were prepared and its glass was painted by one and the same artist—MR. LYELL CARR."



STAINED GLASS

OWING to the many commissions for large heroic windows recently placed in our hands, it has been found necessary to provide much more extensive quarters, where such work can be shown in actual position. We have secured the old church,

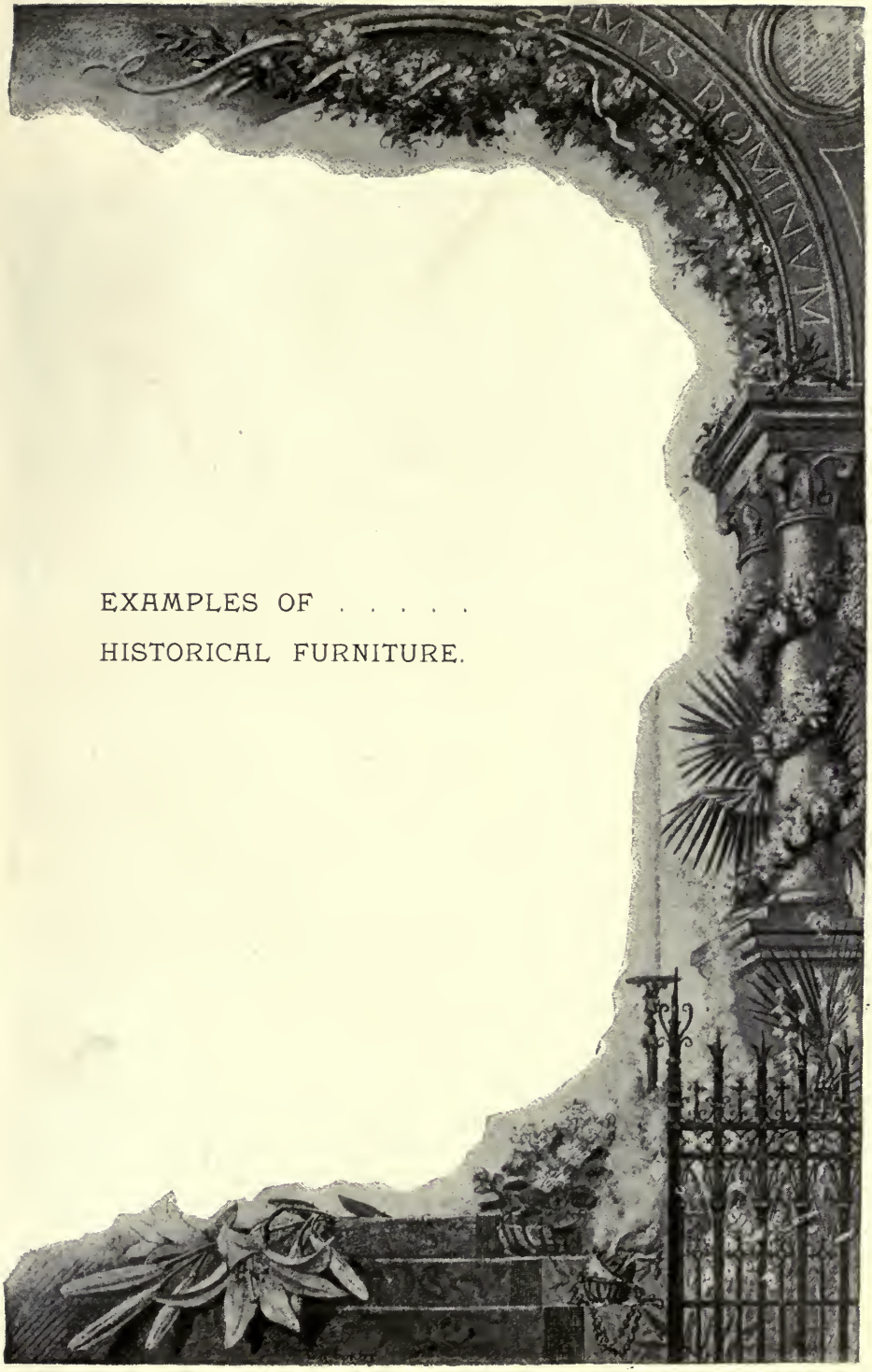
SIXTH AVENUE AND THIRD STREET,

where we have arranged a large studio. Here the stained glass can be shown in place and the effect judged exactly as it would be in the church for which the work is designed.

Correspondence Solicited for all forms of Church or House Work.

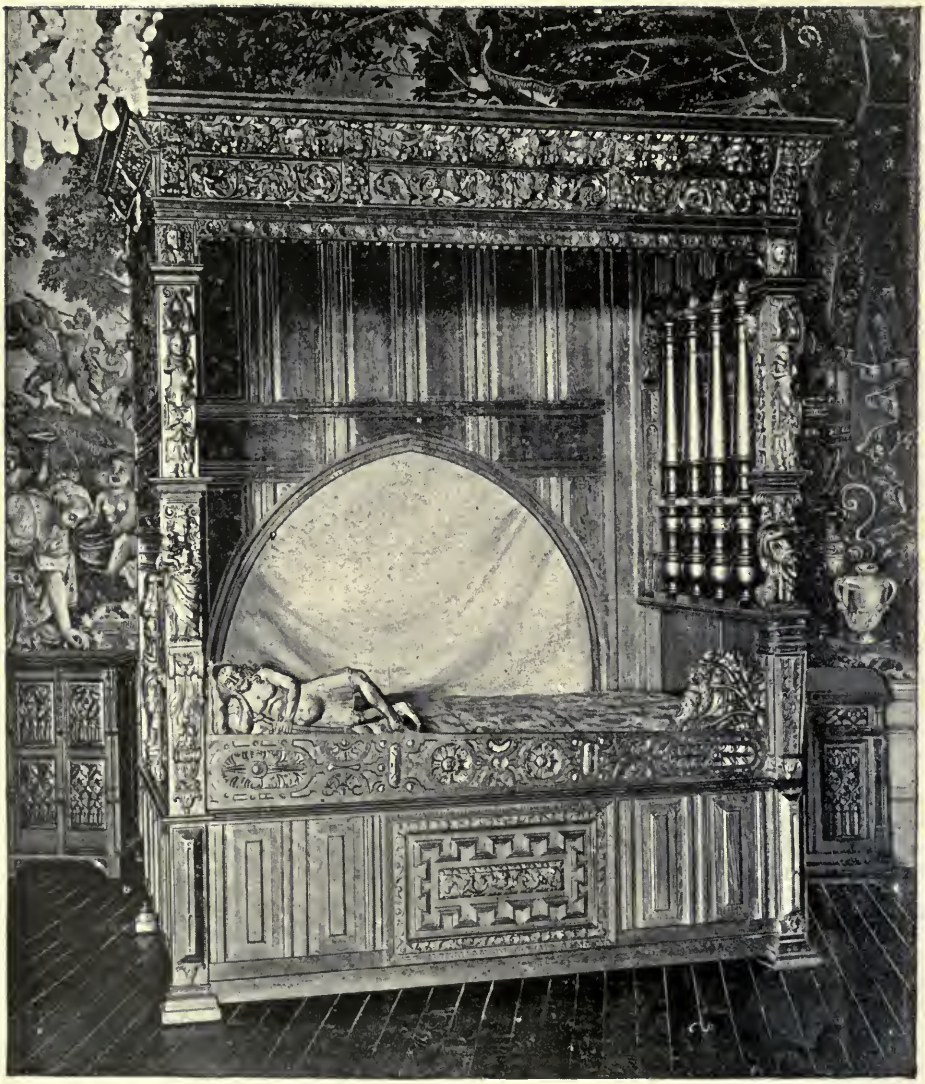
J & R LAMB

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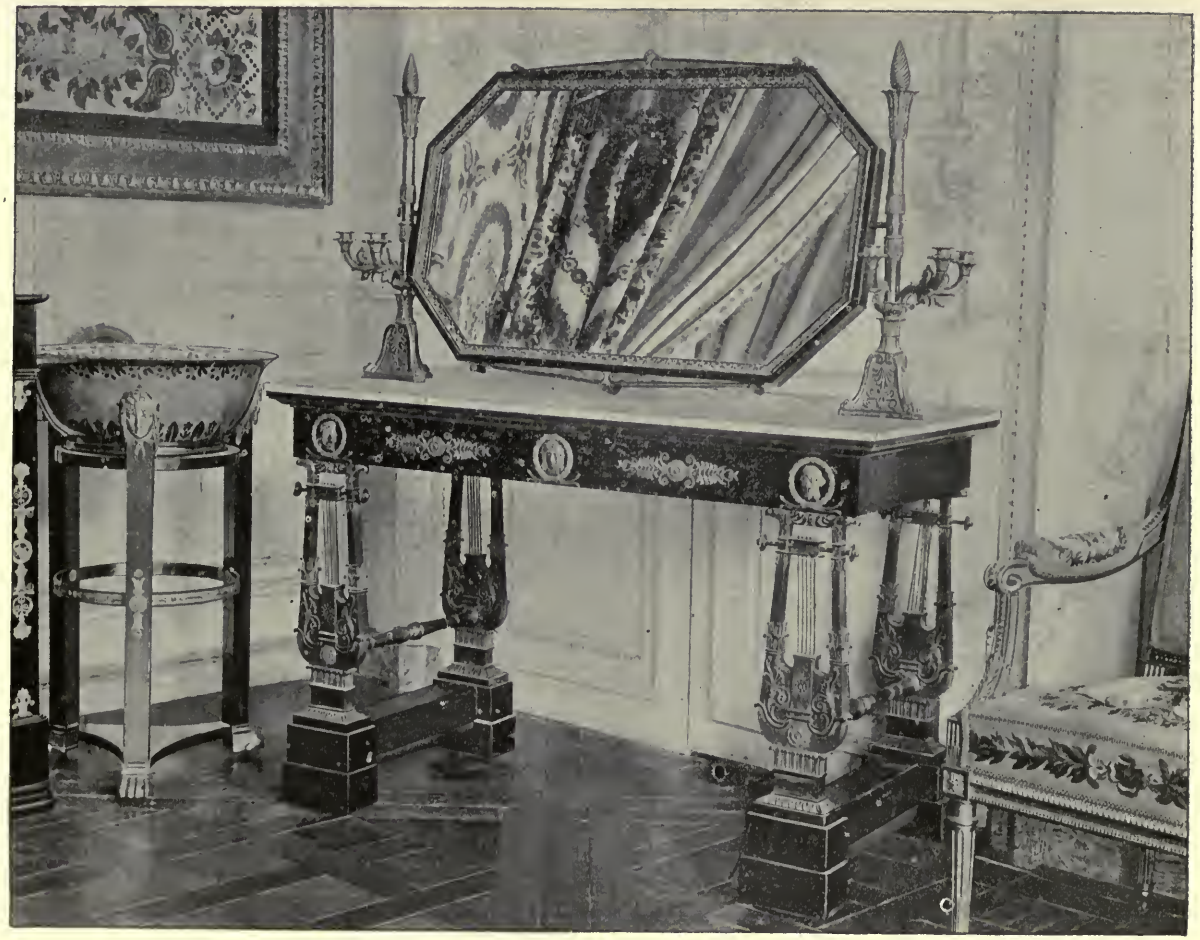


EXAMPLES OF

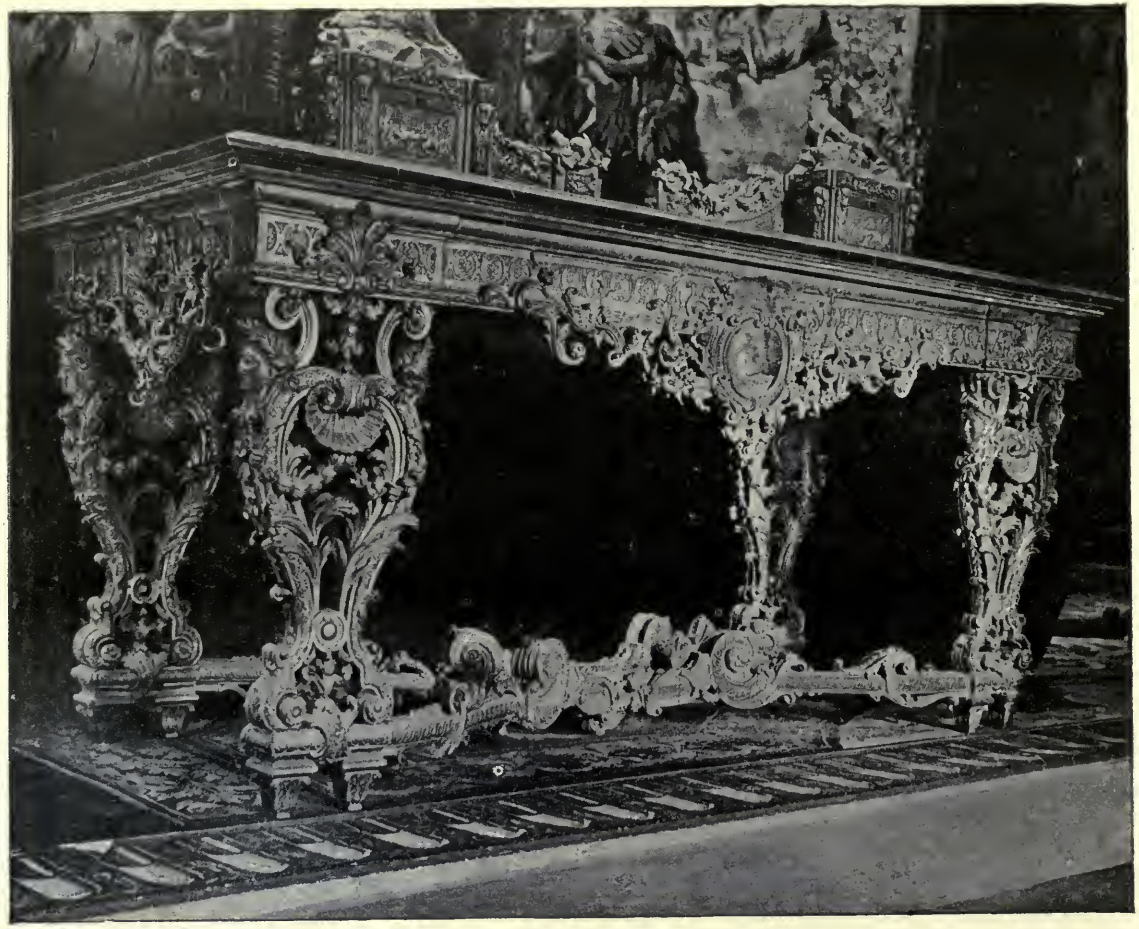
HISTORICAL FURNITURE.



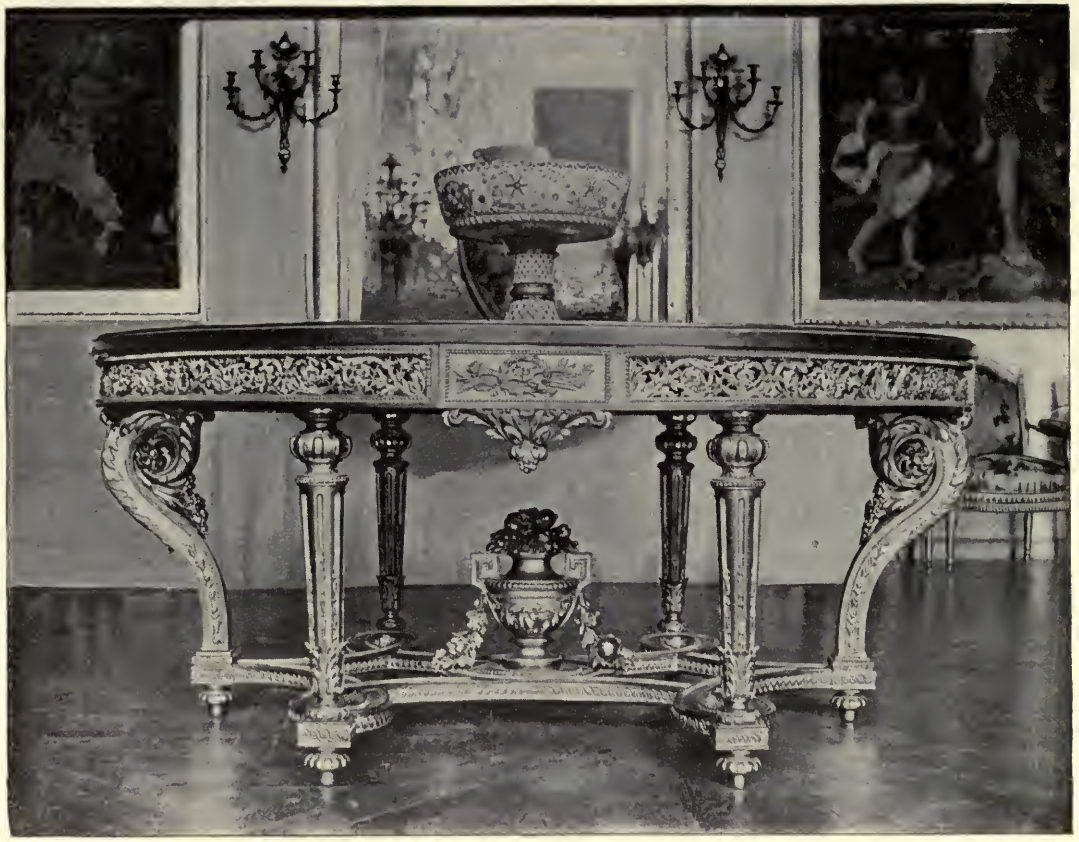
BED IN CHATEAU DE PAU, JEANNE D'ALBRET.



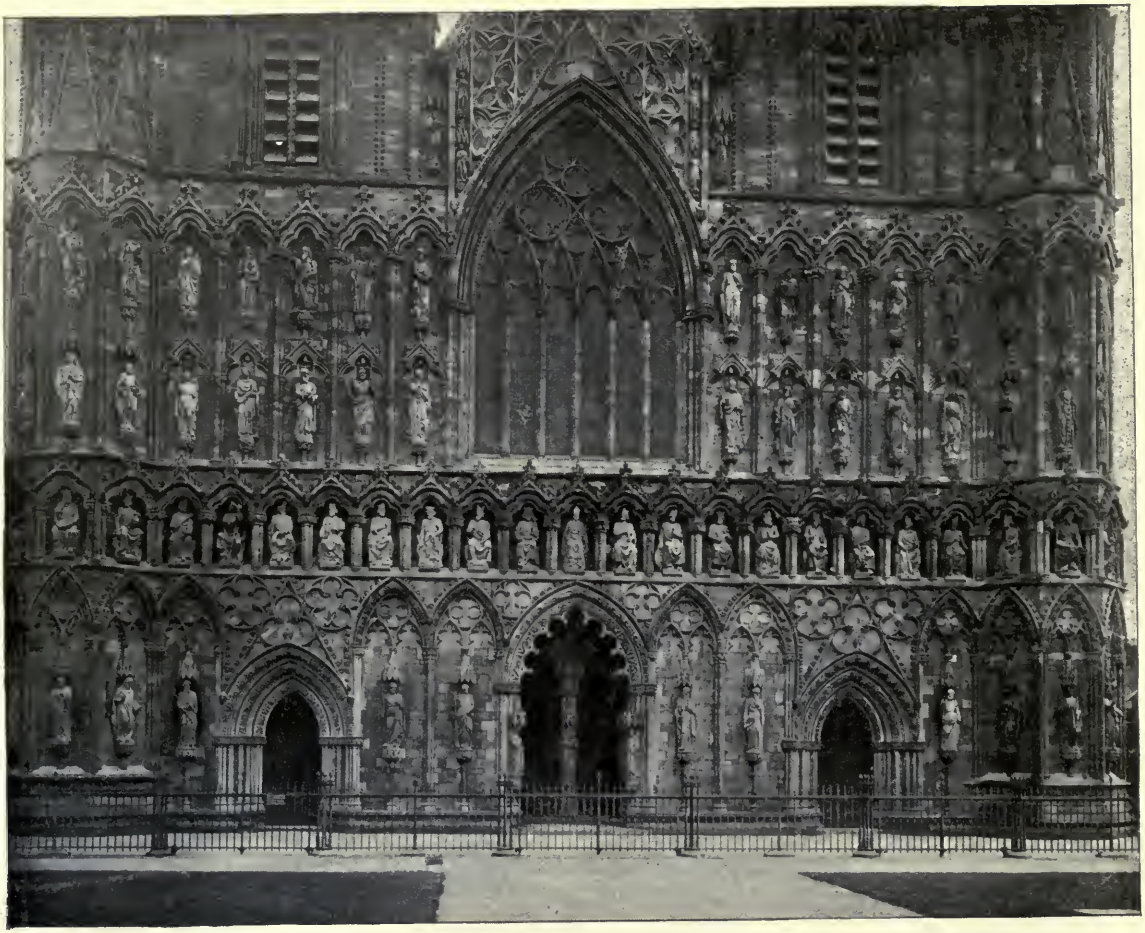
TOILET SET, EMPIRE STYLE.



TABLE, LOUIS XIV. PERIOD.



TABLE, LOUIS XVI. PERIOD.



WEST FRONT, LICHFIELD CATHEDRAL.

The
Architectural Record.

VOL. II. APRIL-JUNE, 1893. NO. 4.

ARE CONVENTIONAL PATTERNS SPONTANEOUSLY GENERATED? *



IN the pattern ornament of the nineteenth century we may distinguish three classes of designs—first, the pattern which repeats a more or less realistic picture; second, the patterns designed under the conventionalizing methods of the Decorative Art movement; third, the conventional patterns of tradition. It is with these last that the student of the lotus has to deal, but first and foremost he is obliged to say what are the conventional patterns of tradition, and to prove that they are traditional. For it appears that the elementary knowledge of some people is the fundamental ignorance of others, and we have practically heard the assertion from some critics of the "Grammar of the Lotus" that there are no patterns of tradition. According to the *Nation*, for instance: "There is a considerable number of forms so obvious and inevitable that it would be a wonder if they were not nearly universal....certain ones are practically universal, and are reinvented every time an untaught person tries to invent ornament.... Most of these simple elements are found in the ornament of every savage tribe that has attained a little skill." It is indeed natural to suppose that the simpler a pattern is, the more easily it is invented. The only sophism about this natural supposition is that the simple patterns have never been invented. They have always been inherited. Nature was their original starting point before they became simple. As patterns they represent a habit, not an invention. This is my assertion. The thesis as such is not a new one, although my applications of it to the lotus and to classic ornament mainly are; but we shall see that as far as anthropology has gone in studying savage ornament, it has already worked largely on this assumption. According to the "Primer of Art," by John Collier (Macmillan): "Any natural object could give the starting point for a pattern which would soon lose all resemblance to the thing it originally represented." The picture was reproduced "without regard to the original until the picture became conventionalized into a pattern, which pattern, once freed from the trammels of nature, developed itself according to man's sense of harmony of line and color. This, then, was the origin of decorative art."

I have a very dear and learned friend

* Being the second Paper of a series on the evolution of classic ornament from the Egyptian lotus. See "The Grammar of the Lotus—an Answer to Critics," in October (1892) Number.

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who objected to my theory of concentric rings, that he used to make them on a barn when he was a boy, with a pair of dividers. The odd thing is that concentric rings are not found in the art of nations which have been best acquainted with dividers. They have not been used in Europe as an ornamental system since the time of the prehistoric bronze culture, and they are there distinctly derived from concentric rings joined by tangents, which represented spirals. They were not invented, they were evolved. As for the spiral itself, we will consider that later, and its problem is the same as that of the Ionic volute.

The fact is that modern criticism has its own prejudices and its own narrowness. It is very loud in its announcement of the evolution theory, but it is very illogical in supposing that there has been no evolution in the field of ornament. I shall try to show in this paper that it is in blunt contradiction with the researches of its own anthropologists when it asserts that geometric ornament is the initial starting point of primitive man. According to the *Critic*, "Given the tools and an instinct for decoration, geometrical ornament will spontaneously follow"—but when we examine history we find that the earliest ornaments of primitive man were very



Palæolithic drawing on bone.—Bison's Head.

life-like pictures of the mammoth and other animals, the drawings on bone and horn of the Palæolithic Epoch. For the moment let us remember where we obtained our own theory of conventional art, how long we have had it, and how very apt we are to transplant the habits of thought created by it to the art of other days, without authority and without reason. I was speaking of the three classes of patterns in modern use with reference to this very point.

Of the pictorial patterns just specified we may find the most numerous, accessible and obvious instances in textile fabrics and on wall papers. None of these pictorial patterns have a wide diffusion or a distinct hold on public taste. Their weakness, as far as survival is concerned, lies in their multiplicity and in the demand of fashion and of trade for a novelty. Another weakness is the constant initiation of more and more people into the point of view, which is a matter of course to the educated decorative designer, that the more pictorial a decorative design, the less it is fitted for good decorative results and purposes. Since the days of Owen Jones and his "Grammar of Ornament" the theory and practice of conventional ornament have triumphed wherever thought and culture have made their way. This was a grand reaction for good as against the feeble pictorial ornament of the first half of our century, but Owen Jones omitted to teach his pupils of the Decorative Art Revival one thing, viz.: how the conventional style of design, which he so rightly admired in historic art, had actually developed in historic use. With our own time conventional art is a theory taught by Owen Jones. In historic art it was a result reached by evolution. Since his "Grammar of Ornament" (1856) we have undoubtedly invented a good deal of geometric pattern or highly schematic pattern on theory. We have even taught such invention and the practice of such invention in elementary schools and kindergartens. But do not, oh, man of to-day, be so wise as to imagine that primitive man is taught in a kindergarten. *His* only kindergarten is the fetich.

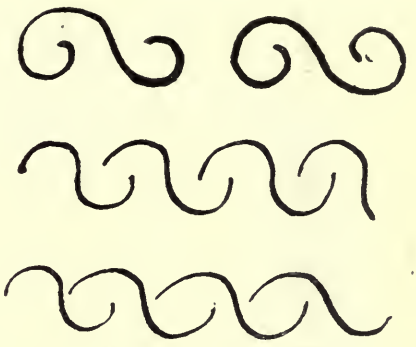
Now there are, in our own practice, a vast number of intermediate stages between the purely pictorial patterns of untrained modern art and the conventional patterns of the modern educated decorator; but when we turn to those patterns which are distinctly characteristic of the recent period of theoretic invention, it will also be found to hold of them that they have no lasting future. It will hold also of them that they are too numerous to last, and it may be added that they have not the strength to cope in popular general

usage with the patterns of tradition. The strength of these last *is* the strength of tradition, of wide decorative availability and constant use, and above all of the limited number and simplicity of their elementary motives. A still more important element of strength is inherent in their architectural use and in the ascendant power of architectural art over all minor arts of decoration. These traditional patterns are consequently dominant in terra cotta, in tiles, in iron and metal work, and in wood carving, and are copied in color, in fresco and in stamped designs. Moreover these conventional traditional patterns have received a new impulse, and have gained fresh strength from the Decorative Art Revival. As found in the "Grammar of Ornament," and in the similar works of Racinet and others, they have been copied by modern decorative artists searching for a ready-made motive, from the historic plate illustrations of Egyptian, Assyrian, Greek, Arab and Renaissance art. There is no doubt that the plates of these illustrated works have had a much more powerful influence in promoting the spread of the old conventional patterns than their theories have had in furthering the invention of new ones.

It is the limitation in number, the simplicity and the wide-spread modern use of these conventional traditional patterns that has caused the belief that some of them are spontaneously generated whenever and wherever an ornament is wanted. That they are found both in ancient and modern art at remote distances, in various quarters of the world, and at points which appear to us to have been inaccessible to one another is undoubtedly true. That they are universal is not true; that they are common or elementary or indigenous forms in primitive art is not true. That they have ever been spontaneously generated in Europe is positively untrue. I shall show what amount of historic continuity can be proven for them, and when this has been done I think that the advocates of the spontaneous generation theory will admit that its case is very much in suspense, not by any means a matter of course, and certainly not a case which will justify its advocate in patronizing an opponent.

II.

I do not think it has been suggested that the Ionic capital, the "honeysuckle," or the egg-and-dart moulding have ever been spontaneously generated, but it is the prevailing view that



Evolution of the Guilloche. The two later stages are found on Cypriote vases.

the meander, the various forms of spiral ornament, the guilloche, and the rosette, are "reinvented every time an untaught person tries to invent ornament," and that "they are found in the ornament of every savage tribe that has attained a little skill."* But all seven motives named, and some few other motives, belong to one ornamental system, and have never been used in Europe, apart from historic connections with their original system, since the Greeks, and have never been used in Europe since prehistoric ages, without distinct dependence on the Greeks. As found with the Greeks they can all be traced back to Egyptian sources; except the guilloche, which is only a later variant of the spiral scroll.†

I will not stop now to debate the origin of any of these forms and I will waive the egg-and-dart moulding, as regards even its mention in the Egyp-

* See quotations from the "Nation" in my first article.

† The guilloche pattern has been found in Egypt on pottery dated to the Twelfth Dynasty (3000 B. C.), which was probably made by foreigners resident in the country, but it may easily be an Egyptian pattern which has not yet been specified as such, for want of sufficient evidence in the way of finds.



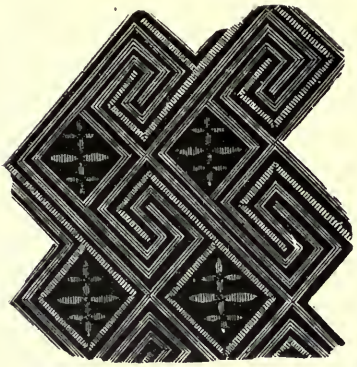
Head of the Lady Nefert, portrait statue of the Gizeh Museum. On the head-band are rosettes between lotuses, dating about 4000 B. C. Neck ornament of lotus buds inverted.

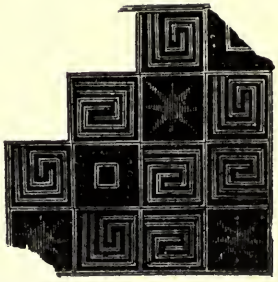


Enamel rosette amulet; Owens College, Manchester. Dating about 3000 B. C.



Scarab with spiral scroll. Fifth Dynasty (3900 B C.)





Meanders from a tomb at Siout; about 2500 B. C.

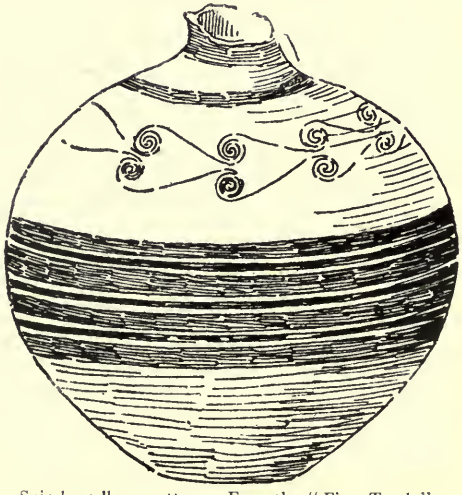
tian category, if any one should desire me to do so, as its motive is only found in Egypt in the form of a flat lotus border inverted. But still let us stop a moment to consider this point of historic continuity for the ornaments named, in block. The Egyptian rosette can be dated to the Fourth Dynasty, 4000 B. C. Since that time its history has been continuous. Since its first transmission to Europe it has never been reinvented in Europe, for there was never an occasion or a chance to reinvent it there. The spiral scroll is dated to the Fifth Dynasty.* That too has had a continuous history since that time down to the nineteenth century, as far as Europe is concerned. The meander is dated at present to the Thirteenth Dynasty, about 2500 B. C., and the same point holds again for its Euro-



Granite pillars at Karnak. On one of them the Ionic lotus in relief; about 1600 B. C.



Enamel lotus palmette amulet, Owens College, Manchester. Original type of the Greek anthemion; dated about 3000 B. C.



Spiral scrolls on pottery. From the "First Tomb," Mycenæ. Schliemann excavations.

* References and authorities for all dates will be found in the "Grammar of the Lotus," by referring to its index.

pean history after that date. The Egyptian Ionic capital is dated to the Eighteenth Dynasty, 1600 B. C. The Egyptian anthemion ("honeysuckle" original) is dated to the Twelfth Dynasty (about 3000 B. C.) In the various cases mentioned the dates are for the earliest known cases among the very rare instances of positively dated ornaments for very early times, and a considerably higher antiquity than the given date must be assumed in all cases. The lotus border originals of the egg-and-dart moulding are certainly much older than the Eighteenth Dynasty to which we can positively date them.



Tombstone anthemion, Athens.

Some of these ornaments traveled all over Europe in the prehistoric period. None of them, however, appeared in Europe before the Age of Bronze, and they moved with the arts of metal partly by land, partly by Phenician commerce, from the South and Southeast to the North and Northwest. From the days of the Greeks downward the history of all these forms and patterns is continuous in Europe. In the Middle Age, when classic art was nominally or apparently abandoned, the surface patterns at least are historically continuous. The anthemion can be verified for all periods of the Middle Age. The Ionic capital survived till the twelfth century at least. The egg-and-dart moulding can be verified for



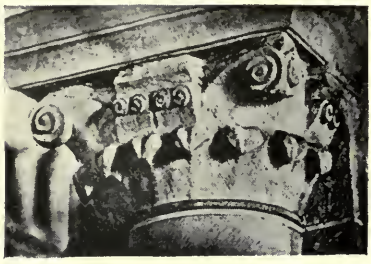
Prehistoric Swedish bronze axe, with spiral ornament.



Roman anthemion, alternating with remote lotus derivatives. The lower border is a variant of the leaf and dart moulding, with alternated lotus trefoils. Lateran Museum.



Detail of the bronze chandelier at Hildesheim. Anthemions and spiral scrolls of the XIth century.

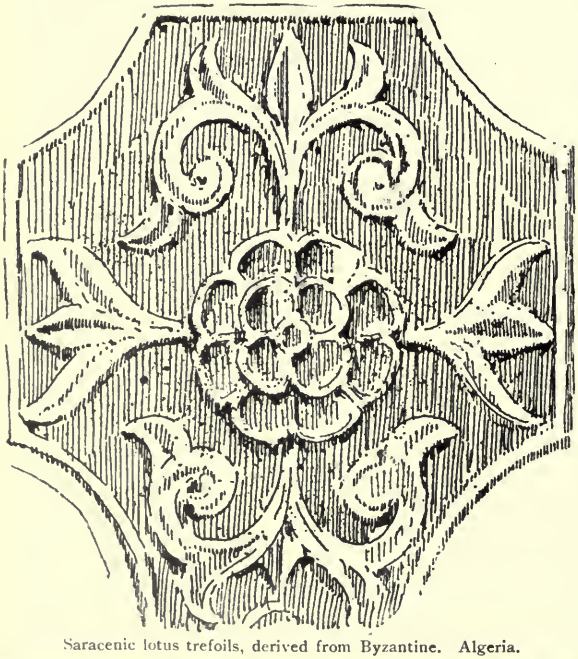




Ionic capitals at Caen, close of the XIth century.

the twelfth century at Arles. The rosette was never given up. The spiral scrolls are historically continuous and the Egyptian lotus trefoil (*fleur de lys*) is a conspicuous instance of continuity.

With the Renaissance period the Greco-Roman motives were all revived, and many of them had survived without reference to this revival. It is not long between the last days of classic art in Southern France and the first days of the Italian Revival in Pisa. From the time of the Renaissance to the nineteenth century all these motives have been strictly traditional. They have been carried along by the great waves of civilization which have moved from the Renaissance, from the Greek Revival, and from the recent studies of historic art. Their continuity is a phase of the one essential fact of the history of civilization, that man never reinvents anything that he finds ready-made to hand. They met all the natural demands for ornamental patterns. They were passed on, from one decorator and artisan to another, as the matter of course things to do.



Saracenic lotus trefoils, derived from Byzantine. Algeria.

Now I urge that the history of ornament in Europe establishes a preliminary presumption that these ornaments when found elsewhere may not have been created independently or spontaneously, and outside the American Continent we have not the slightest difficulty in proving a positive case.



Fifteenth century Italian lotus trefoils and anthemions, derived from classic models.

I will now take up successively the patterns for which the

claim has been especially made that they "are reinvented every time an untaught person tries to invent ornament." It may be well to mention the Ethnographic Collections on which I base the following statements. They are the New York Natural History Museum, the National Museum at Washington, the South Kensington Museum, the British Museum, the Pitt-Rivers Museum at Oxford, the Trocodéro in Paris, the Kircher Museum at Rome, the Ethnographic Museum of Amsterdam, the Ethnographic Museum of Berlin and the Ethnographic Museum of Leyden. The two last named are the finest collections in the world, and I have made a careful study of their evidence, having examined thousands on thousands of objects to reach my conclusions.



Buddhist gold relic casket, Greek style, dated 50 B. C. From the Valley of the Cabul. "The bottom of the casket is ornamented with a beautiful conventional representation of the sacred lotus."

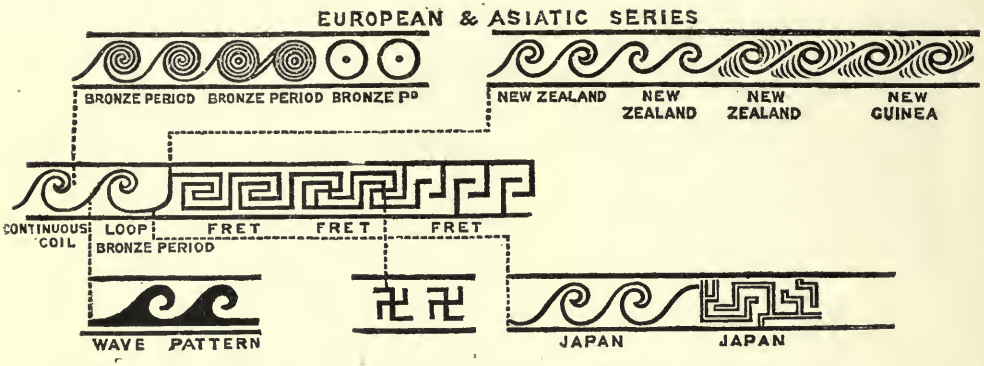
Notwithstanding the enormous number of objects from the Pacific Islands in Berlin and in London, the Leyden Collections must be placed first. They are much more comprehensive and systematic as regards a balanced choice of objects for all local centres, for the Pacific Islands in general, and above all they are connected with a representative exhibit for the Malay Archipelago which is simply unique.*



Silver patera; Greek style, Bacchic subject. From Badakshan.

When these various Ethnographic Collections have been examined it appears that the conclusions obtained for Europe regarding the meander are substantiated. So far from being a universally employed

* Owing to the facilities offered through the Dutch Colonies of the East Indies.

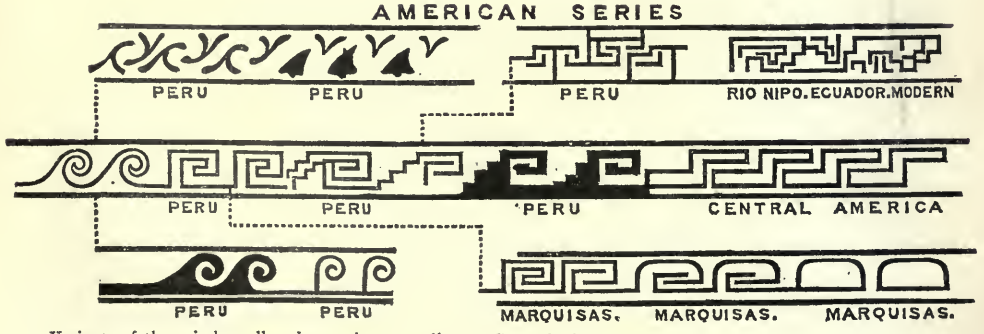


Variants of the spiral scroll and meander, according to General Pitt-Rivers. From John Collier, Primer of Art.

or spontaneously generated pattern it is distinctly traditional outside of Europe, as far as we can trace its history. It is unknown to barbaric Africa;* it was not used in ancient Mesopotamia. It is foreign to Mohammedan and Arab art. Its sporadic appearance in Asia, India, Thibet, China and Japan, is due to Buddhist influences. The Buddhist art is the earliest that we know in India (third century B. C.), and at its first appearance is saturated with Greek influences through the Greek states of Bactria founded by the successors of Alexander the Great and through the commerce then actively carried on with the West. These same Buddhist influences by way of farther India would explain its occasional appearance in the decoration of the Malay Archipelago, where it is by no means common. The meander is so rare in Polynesia that the Leyden Collection contains only two examples * and I have not observed a single other Polynesian instance in the magnificent collections of London and Berlin. In the same exhibition case, with the instances of the meander from the Marquisas Islands, I noticed a necklace made of common *shirt buttons*. This palpable indication of European influence might account also for the meander, and although I am not disposed to insist on the coincidence there are agnostic minds which would — under other circumstances. For instance, if supposed cases of ancient Northman ornament were found in Massachusetts with necklaces of shirt buttons, I think it would be hard to convince the agnostic

* I have notes for one or two sporadic cases.

* On ivory ear ornaments from the Marquisas Islands. The meander is also quoted for the Marquisas Islands by General Pitt-Rivers, founder of the Oxford Collections known by his name. I have not found it in Partington's publication of Polynesian ornament. As influences from the Malay Archipelago are conceded for the whole of Polynesia, a sporadic appearance has nothing surprising about it. The meander is distinctly foreign to the ornamental systems of Polynesia as such.



Variants of the spiral scroll and meander, according to General Pitt-Rivers. From John Collier, Primer of Art.

mind that European influences since the time of Columbus did not account for both phenomena in Indian art and throw the Northmen out of court. The Buddhist influences in the Malay Archipelago and the occasional appearance of the meander there would, however, sufficiently explain any sporadic cases in Polynesia. As to the instances of the strange surprises of native intercourse in this part of the world, I think one of the most curious is a neck ornament of *elephant* ivory imitating a *whale's tooth*, from the Fiji Islands, in the British Museum.

As to the appearance of the meander in the ornamental systems of Ancient America, I have personally traced its diffusion, and that of the patterns with which it is generally associated, from the Buddhist art of Thibet and Mongolia through Siberia and the Aleutian Islands as far as Alaska, in modern survivals.* The Mongolian



Ancient Pueblo pottery from New Mexico. National Museum, Washington.

descent and affinities of the native races of America have been asserted or noticed by many writers.† The theory of the settlement of America by way of Behring Straits and the Aleutian Islands and by way of voyages in the North Pacific is that of the most conservative students. An interesting illustration of native intercourse in our own days in this quarter of the world is in the Berlin Ethnographic Museum, a girdle of Chinese coins on a native woman's dress, from Cook's Inlet, Alaska.

The Mongolian character of the Pueblo Indians is specified by a recent article in *Scribner's*, which also mentions the language of the Navajos as being identical with that of the Tinneh tribe of Alaska. A visit of Chinese Buddhist priests to America in the fifth century A. D. is an attested fact of history.* Buddhist influences in Ancient America are noted by Sir George C. M. Birdwood, in his South



Chinese pottery anthemion; Buddhist derivative.



Chinese pottery anthemion; Buddhist derivative.

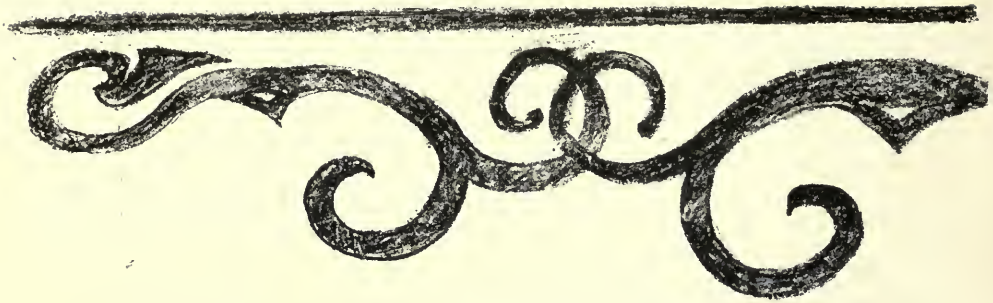


Chinese pottery anthemion supporting lotus trefoil; Buddhist derivative.

*In the Ethnographical Collection of Berlin, which are the only ones of sufficient extent for the Amoor Valley, for the Yakoots and for Alaska. There are also important instances of the Siberian meander at Amsterdam.

†For instance, by the most recent authority on American history, "History of the New World called America," by Edward John Payne, Fellow of Oxford College. According to the London "Academy," "He connects unreservedly the peoples of America with the Mongol or Tartar races."

*See "Fusang, or the discovery of America by Chinese Buddhist priests in the fifth century," by Charles G. Leland.



Spiral scroll derivative from Buddhist ornament. On an Eye-shade from Alaska in Berlin. Author's sketch.

Kensington Handbook on "The Industrial Arts of India."

According to the latest (Ninth) Edition of the Encyclopædia Britannica, in its article on the Zodiac: "A large detachment of the (Chinese) cyclical animals found its way to the New World. Seven of the twenty days constituting the Aztec month bore names evidently borrowed from those of the Chinese horary signs. The Hare (or Rabbit), Monkey, Dog and Serpent reappeared without change; for the Tiger, Crocodile and Hen, unknown in America, the Ocelot, Lizard and Eagle were substituted as analagous."

The area of diffusion in Ancient American Art of the ornamental system to which the meander belongs shows a gradual weakening of the motives (as regards adherence to normal forms) and of their frequency, from North to South, between the extremes of Arkansas and Peru, which are the extremes of present excavation of ancient remains in large amount. This is what we should expect on the theory of an introduction from Asia. The recent discovery of Siberian inscriptions in an alphabet resembling the Carian and Lydian of Asia Minor,* found in the valley of the Yenesei, has been supplemented by a still more recent discovery made known to the Ninth Oriental Congress (which met in London in September) by Professor Donner, of Finland, of a Siberian inscription of the eighth century A. D., having Chinese characters on one side of the block and these same characters of Asia Minor on the others. I personally make known to Professor Donner the inscription of the Grave Creek tablet found in a mound-builder's tomb of West Virginia in 1838, with the result that he specified offhand thirteen of the twenty-three characters as being identical with those known to him from the Siberian inscriptions.

All these various points lead to the conclusion that as long as we can prove an unbroken continuity for the history of the meander pattern throughout the whole world, outside of Ancient America, we are justified in relating its presence there to a similar historic continuity. I am satisfied for the moment to have traced the ornamental system to which it belongs in modern survivals from Thibet through Mongolia and Siberia to Alaska, and I am satisfied to rest my case for the relations of Ancient America with Asia on the following quotation from the most recent author on the "Migration of Symbols," Count d'Alviella, Professor of the History of Religions in the University of Brussels: "It must be admitted that the art of the far East has been profoundly modified by Buddhist types which came from India. As to Ancient America, Gustave d'Eichthal had already drawn attention to similarities which exist between the monuments of Central America and of Buddhistic Asia. For my part I am more and more inclined to admit, not the Asiatic origin of the American populations, but, what is quite another question, the intervention of certain artistic influences radiating from China, Japan, or the Indian Archipelago long before the Spanish Conquest."

* These alphabets were generally abandoned in Asia Minor at least as early as the fourth century B. C.



Greco-Roman ornamental details. From Trajan's Forum. Lateran Museum.

It is interesting to notice that these conclusions of d'Alviella have been largely reached through the study of the symbol called the Swastika, which I have proven in the "Grammar of the Lotus" to have been originally a section or segment of the meander pattern.



Byzantine well, Venice. Motives derived from the classic; guilloche border above, inverted debased anthemions, spiral scrolls.

III.

In order of prominence among the formal linear patterns which are traditional in nineteenth century use, we may next mention the spiral scroll.* Most of our spiral scrolls have a Renaissance derivation—that is, they are survivals of fifteenth and sixteenth century Italian copies of Greco-Roman originals, which in their turn are derived from the earlier Greek, and these again are decorative evolutions from Egyptian patterns. When our spiral scrolls are not Renaissance, they are copies dating from the Greek Revival of the late eighteenth and early nineteenth century, or they are copies taken by recent decorators from the recent publications of historic decorative art. The theory of spontaneous generation, the supposed natural aptitude of any one who has "tools and an

* I have not drawn any distinction in this paper between the purely linear spiral scroll and those which bear foliage and flower details. The evolution of these last from the lotus spiral belongs to the later Greek art originally.



Byzantine capital, Ravenna. Details derived from the classic.

instinct for decoration"* for making spiral scrolls without reference to tradition, shipwrecks utterly when brought face to face with historic facts as far as Europe is concerned. Tradition is not only the rule but it is a rule without exceptions.

Theorists and reviewers (who are generally more than twenty years old) can sit down at a desk and design a spiral scroll on the writing pad which will carry their article to the press. They will then announce on the same writing pad that any child can do the same thing, and that primitive man can do, and does do, anything that a modern civilized child can do. But somehow it happens that reviewers and children who have grown up, or are growing up, surrounded by the originals of the forms which they fancy themselves to be inventing, are not the people who are called upon to design decorations for the market. Decoration is a trade which presupposes, like all other trades, a special education and compels it. This education is either traditional, that of the artisan—say a stove maker—who recasts an old pattern with or without slight modification—or it is special, the education of an architectural school or a school of decorative art where the pupil is surrounded by historical examples whose influence comes to the same thing.

The question is not whether a person who braces himself up to answer Mr. Goodyear's theories could not invent something new in the way of a spiral, but the question is whether before the time of theoretic instruction in decoration, which never existed before 1850, anybody who was an artisan decorator ever did brace himself up to do such a thing. When the question is put in this way the argument is all on my side to any one who knows anything about the history of ornament.

As a matter of fact, under normal conditions, wherever and whenever a

* See quotation from the "Critic," in my first paper.



Romanesque anthemions and spiral scrolls. Detail of the bronze chandelier at Hildesheim, XIth century.

new departure is made in ornament, that new departure will be from a *natural form* or a natural phenomenon. Where the pattern is abstract, schematic, or apparently purely linear, that pattern will be a traditional survival of a form which was once also a form of nature, and the modifications made in it will have been gradual and evolutionary.

I am speaking now of the spiral scroll especially, and having asserted that all our motives of this character are fundamentally classic, and Egyptian before they were classic, I wish to speak of the spiral scrolls of other ornamental systems—mainly to say that, like the snakes in Ireland, there are none—none that is that are not derived from the system under discussion.

We have seen already that the earliest Hindoo art known to us is Buddhist under Greek influences,* and we must turn now to the "Moorish," or, more correctly, Arab Mohammedan system, to notice that this also is of ultimately classic derivation. Aside from Persian influences on Arab art, which again go back to the



French Romanesque details derived from Byzantine (St. Amand de Boissée).

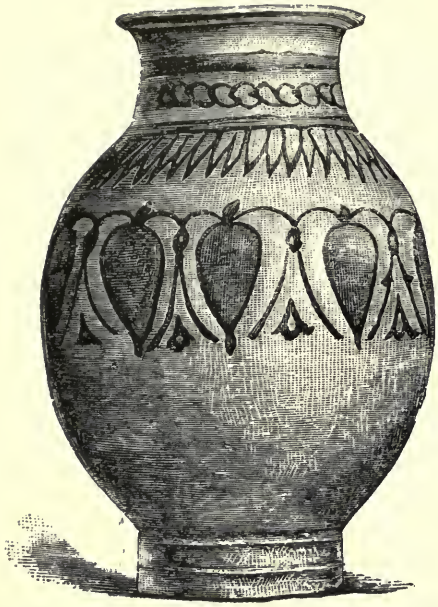


English Gothic details, derived from Romanesque. Iron-work of a church door.



Italian XVth century detail; direct revival of the classic.

*There are indications that Persian and Assyrian influences in India preceded the Greek, but as far as dependence of their forms on Egypt is concerned the argument is the same.



Modern glazed Sindh pottery. Traditional pattern of inverted lotus buds and trefoils, derived from the classic.



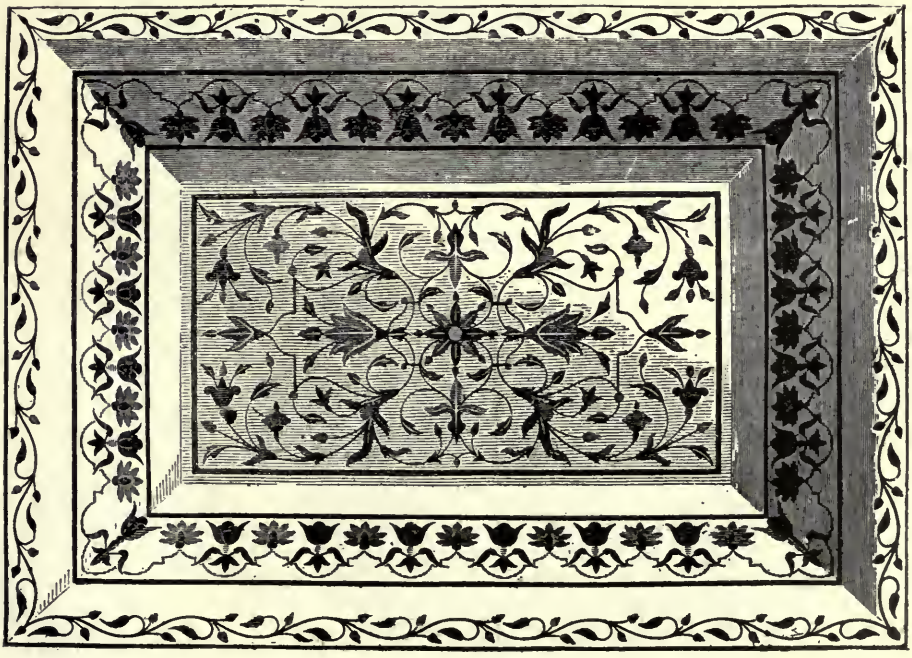
Modern glazed Sindh pottery. Traditional Mohammedan pattern; inverted lotuses.



Arab capitals of the Alhambra. Motives derived from Byzantine.



Arab detail from the Alhambra. Motives derived from the Byzantine.



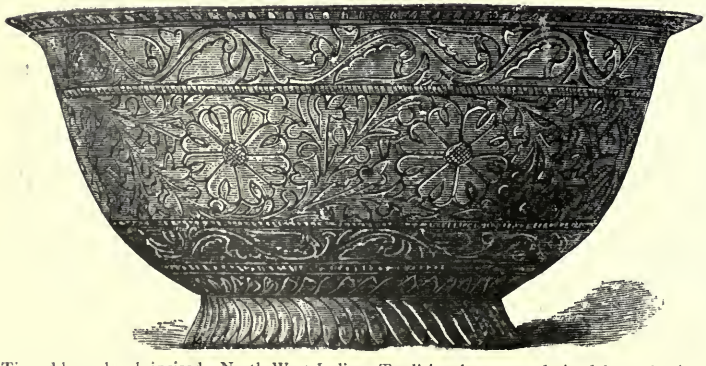
Inlaid work of Agra. Traditional Hindoo lotus patterns (Mohammedan and Persian) derived from classic.



Shield, damascened in gold; Panjab. Traditional lotus patterns derived from classic.

same original elements,* Arab ornament was derived from Syria, Egypt and North Africa (all of which were Byzantine [Roman-Greek] provinces) in the seventh century A. D., and at the time of the Mohammedan conquest of these countries from the Byzantine Empire. The dependence of the Arabs on Byzantine culture has been well explained by Mr. Freeman in his lectures on the Saracens and is otherwise a commonplace of the average historian. All the Arab and Mohammedan spirals (generally with lotus trefoils) are modifications and evolutions from the Byzantine Greek. If you will turn now to a map of the area of the Mohammedan religion, which means Mohammedan art and culture also, you will find it reaching in Africa from the shores of the Mediterranean to the River Gambia, to the Niger, to Lake Tanganika, and to Zanzibar.*

*Sassanian art is bastard classic.



Tinned brass bowl, incised; North West India. Traditional patterns derived from classic.

In Asia we find the Mohammedan

* See map published in "Islam and its Founder," by Stobart (Society for Promoting Christian Knowledge).

color spreading from Arabia, Asia Minor and Persia through Turkestan into Siberia as far as the River Ural, as far as Tobolsk, as far as the Irtish and the Obi. We find the Mohammedan color spread over India, in the Peninsular of Malacca, and the Malay Archipelago, Sumatra, Java, Borneo, and the Celebes. Now let the reviewers who assert the spiral scroll to be one of the natural ornaments of barbaric man consider the point that it does not occur in barbaric Africa at all, excepting in cases of palpable Moorish or Arab art. I have seen it, for instance, on some very rude brass vases of Moorish design from the Niger, in Berlin. Otherwise it does not occur in the Niger or the Congo country or in other parts of barbaric Africa.* The Somali and Abyssinian ornament is of course Arab.

If we turn to the Malay Archipelago, as compared with Polynesia, the case for the historic traditional continuity of the spiral scroll becomes a certainty. It is here that the Ethnographical Collections of Leyden come in play, the only systematic and complete Collections for the Malay Archipelago in the whole world. Let us remember now that the ornamental system of India was in the first instance, as known to us—Buddhist, under Greek foreign influences as explained; second —Arab Mohammedan. The spiral scroll ornament of modern India is a mixture and survival of the two. (The more formal classic style of old Buddhist ornament has disappeared in India.) This is the ornamental system of the Malay Archipelago. One of the most astounding monuments of Buddhist

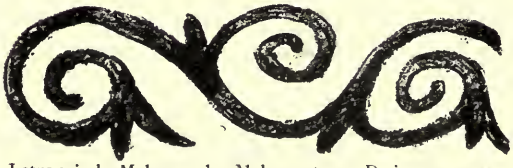
*The best collections for Africa are those of Berlin and Rome (Kircher Museum).



Top of a Dyak coffin, Borneo. Mohammedan Malay patterns derived from India.



Mohammedan Malay lotus spirals on a Dyak scabbard from Borneo. Author's sketch, Brit. Mus.



Lotus spirals, Mohammedan Malay system. Design on paper cloth from the Islands of Ternate and Tidore, near New Guinea. Author's sketch, Leyden.



Barbaric scroll patterns derived from the Mohammedan Malay system. On a wooden shield from the Island of Ceram, Malay Archipelago. Author's sketch, Leyden.



Barbaric lotus pattern, derived from the Mohammedan Malay system. On a wooden shield, from the Islands of Ternate and Tidore, near New Guinea. Author's sketch, Leyden.

architecture is the ruin of the temple of Boro Boeder on the Island of Java. The present ornamental system of Malaysia is mainly the Mohammedan Arab. The Malay alphabet, the Malay ornament, the Malay religion, and the Malay culture are all derived from India. Now let the theorist, as to the innate ornamental habits of primitive man, consider that the spiral scroll is absolutely foreign to the ornamental systems of Polynesia, of which there are several. The limit of the spiral



Lotus trefoil pattern, derived from the Mohammedan Malay system, from the Islands of Ternate and Tidore near New Guinea. Author's sketch, Leyden. Compare the Saracenic pattern from Algeria.

scroll Eastward in the Collections of Leyden is the Admiralty Islands, bordering on New Guinea, which is part of Malaysia.

In the Admiralty Islands it is sporadic. In Leyden there are only two instances. In the Berlin Collections the sporadic cases of the spiral are found in other islands also adjacent to New Guinea, Southeast of the Admiralty Islands. Considering that the whole of Polynesia is conceded to have experienced influences from the Malay Archipelago,* we should not be startled at the sporadic appearance of spiral scroll ornaments farther East than the Admiralty Islands, but since I have reviewed the Polynesian Collections of New York, Washington, London, Amsterdam, Berlin, Oxford, Paris, Rome and Leyden, and the publication of Partington for Polynesian ornament, I am willing to rest my case with the simple statement that the spiral scroll is foreign as such to all the ornamental systems of Polynesia, and that the system of the Malay Archipelago is the Mohammedan Arab, which is derived from Byzantine Greek.

There only remains the case of New Guinea and New Zealand. Not only does New Guinea border directly on the Malay Islands, but it is geographically part of Malaysia. The princes of the Island of Tidore have actually been the potentates of the Northern Coast of New Guinea. The New Guinea ornamental system shows degraded and barbaric forms of the Mohammedan spiral scrolls of Malaysia. From these once more are derived the spiral scroll ornaments of New Zealand.†

*The whole of Polynesia is known to have been peopled from Malaysia. Dr. Serrurier, Director of the Leyden Ethnographic Museum, tells me that many Polynesian peoples emigrated from the one Island of Beroe in the Malay Archipelago. These emigrations are supposed to have occurred before the introduction of the use of metals and consequently of Hindoo culture, but later influences are unquestionably implied in the original fact.

†This statement is the result of personal comparisons and observations, but I have the assent of Dr. Serrurier, Director of the Ethnographic Museum of Leyden, to its probability and reasonable nature.



Ornament of a Malay ship. Direct copy from the Dutch Renaissance. Author's sketch, Leyden.



Idol and wooden pillow from the Northwest Coast, New Guinea. Barbaric ornament derived from Mohammedan Malay. British Museum.



Wooden boxes for holding feathers, New Zealand. Ornamental system derived from New Guinea. British Museum.

The Maoris are supposed emigrants from Tahiti, but the ornamental system of New Zealand has no relations with this supposed earlier home of the



Ancient Pueblo pottery, New Mexico.

Maoris. It will show the possibilities and surprises of intercourse in this part of the world to say that a Japanese bell was found in the possession of the Maoris, which had been in New Zealand before the time of the first European settlers. My informant is Dr. Codrington, the great authority on Polynesian and Melanesian languages.

Now let us turn to the evidence of the Berlin Ethnographical Collections, which are simply marvelous in the mass and comprehensiveness of their material for the areas below named. Once more, and this time through Buddhist transmission, we can trace the spiral scroll from the Amoor valley; where the ornamental system is as familiar to us as that of the Malay Archipelago; through the Yakoots of Siberia to the Aleutian Islands and Alaska. At this point I leave it for the present—referring for Ancient America to the remarks previously made on the meander.

IV.

I have re-examined, last Summer, in the museums of Berlin and Leyden and in the Pitt-Rivers Collection of Oxford, the question of the spontaneous generation of the rosette, with the following conclusions: The area of this ornament is far more limited than the area of those just considered. In modern use it is historic and traditional. In ancient European use it was limited to Mediterranean countries and their influences, originating in Egypt and transmitted to Mesopotamia, Phenicia, Greece and Italy. Its use was more and more limited in the later Greek and Roman art, and consequently in the Byzantine, and I am not acquainted with it in Arab use to any marked extent. It was extremely common in ancient Buddhist art, but appears to be rather more limited in modern Hindoo survivals. It is unknown to barbaric Africa and unknown to Polynesia, unknown to New Zealand and New Guinea, mainly unknown to Malaysia. Its rare appearance in Ancient American art must be classed with problems suggested by the normal lotus in the same art, in stone carvings and in gold, and



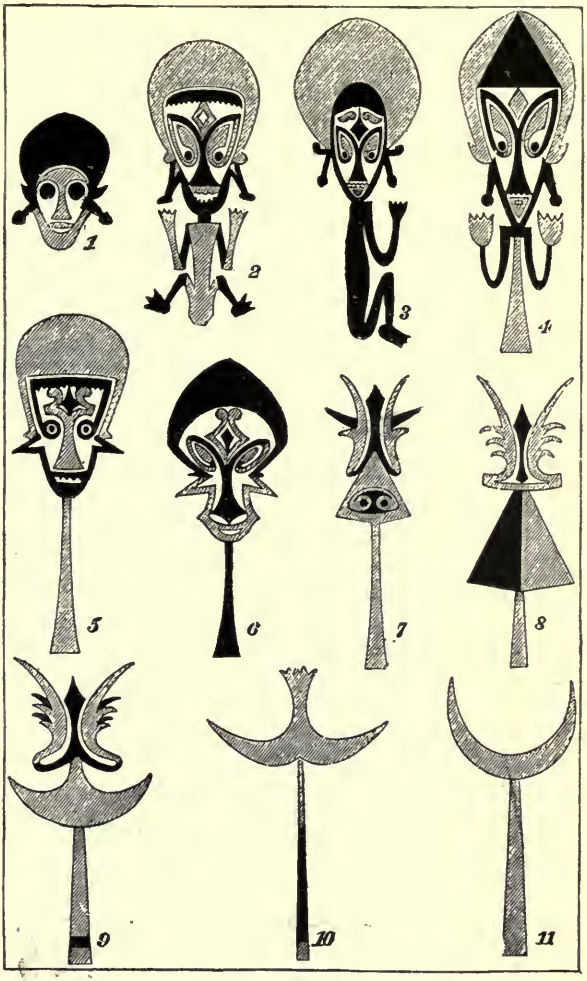
Sindh lacquered box, traditional pattern of rosettes.

I think can only be explained by direct transmission from the ancient Mediterranean world.* There is no pattern of which it can be asserted with so little reason, or show of reason, that it is common and natural to all barbaric and primitive peoples; for it does not appear to be common or native with

* I have offered in the "Grammar of the Lotus" some of the evidence in favor of Phenician voyage from the West coast of Africa to America, in ancient times. I have a sketch of a gold repoussé Ionic lotus in the ancient Mexican Collection of Berlin which is positively unmistakable in its Egyptian identity. I have already published a series of these ancient American lotus patterns, in the work referred to

any. The rosette is an obvious combination for modern kindergarten scholars who are taught to make elementary geometric patterns and to use petals of flowers and floral forms as suggestions for geometric combination—but I do not care to have my case damaged by an appeal to the kindergartens. I prefer to appeal to history and to the ethnographical collections of the world.

I would recommend above all to inquiring minds on this general subject of the continuity of the historic patterns, a study of the ornamental systems of the Pacific, as showing what barbaric man really does do and how many different things he does, when he is left to his own ornamental instincts without the extraneous influence of a superior civilization. A natural appearance or phenomenon of some kind or other appears to be the invariable starting point. As the pattern itself then becomes a tradition and the point of departure for a new copy, this is gradually simplified until all semblance of the original is lost. The human figure or some portion of it was undoubtedly, in many cases, the initial form. In the Pitt-Rivers Museum, at Oxford, there is a series of paddles showing the gradual transformation of a human figure carved upon them, into a crescent supported by a bar. There is also the case of a fish head used to decorate the junction of the paddle blade with its handle, which finally degenerates into the shape of a capital letter W. There are multitudes of these designs which cannot be explained for want of the connecting links or of the originating form, but I believe it is the conviction of experts in this department, that a purely arbitrary or ideally schematic form was rarely or never the first element of the pattern. The introduction of different colors in weaving or basket work, to produce diaper patterns, would perhaps be the only exception to this rule. That the figures of men, fish, animals and birds, which originated patterns, were fetiches and totems, that is to say religious emblems or rather talismans, may be always taken for granted.



Evolutions of a pattern derived from the human figure, on paddles of the Pacific; according to General Pitt-Rivers. From John Collier.

The following positions have been established or taken in my two Papers thus far. First: inside the Egyptian system the normal* lotus asserted such

*By the word "normal" I mean a lotus pattern or picture which is visibly a lotus to an Egyptologist or specialist who has *not* examined the purely conventional evolutions of the plant.

an ascendency as to abundantly account for any evolutions into schematic patterns for which fair evidence is offered. Second: outside of the Egyptian-Greek systems and its developments none of the patterns known to the Greeks have ever been independently developed. Third: the evidence of Polynesian ornamental systems proves that an absolute dissimilarity between the thing originally represented and the ultimate form of a pattern is an elementary fact in the evolution of patterns.



Canoe ornaments, Southwest Coast, New Guinea; contrasting independent barbaric art with Malay influence. British Museum.

On this last point I feel disposed to insist a moment longer. In the series of coins herewith we have a choice from the series arranged by Mr. John Evans in the Pitt-Rivers Museum at Oxford to show the degradation* of the gold stater of Philip of Macedon as copied by the ancient British, which began with a head of the king and terminated in the transformation of a wreath into a sort of cross. The steps of evolution (or degradation) are much clearer when more links of the series are illustrated, the forms shown being copied from a cut in the "Primer of Art," by

* The word is used in a geologic, not in an invidious sense.

John Collier, which was given me by Mr. Balfour, the Curator of the Pitt-Rivers Museum. The fact, however, of this evolution has never been doubted by any one who examined the evidence. Parallels are also found in the history of the alphabet. The letter M is derived from the hieroglyphic picture of an owl. The letter A is derived from the hieroglyphic picture of an eagle. The letter L comes from the picture of a lion, the letter H from the picture of a sieve, the letter F from the picture of an asp. We do not find the slightest resemblance between these objects and the alphabetic signs which are derived from them, and yet we all acknowledge the derivation



Evolutions of the Macedonian gold stater design, as copied by the ancient Britons. As arranged according to Mr. John Evans in the Pitt-Rivers Museum, Oxford.

when the successive steps of transformation are shown.* I once wrote the French word "*jugera*" in a manuscript and it was set up by the printer as "*pigern*," and I could not deny that the word as I had written it was accurately reproduced by the type-setter. We might find many parallels to the problems offered by pattern ornament in the hieroglyphics of some modern penman. The transformations in question are much more rapid and surprising when a foreign nation is the copyist. In such cases the foreign imitator is always subject to the influence of a superior and ascendant civilization, and being both foreign and inferior misunderstands and miscopies accordingly. This was the relation of the Greeks to the Egyptians in the Second Millennium B. C.; this is the relation of the spiral scrolls of New Guinea to those of the Malay Archipelago.

I have been told by Professor W. R. Ware of a platter made by an Indian living on the Hudson during the Colonial period, which was decorated with the words "Public Notice." These words had been copied by the Indian owing to their frequent appearance on the Colonial sign-boards addressed to trespassers. He could not read them, but his respect for the civilization which furnished him with gunpowder and rum led him to regard their frequent appearance within the limits of this civilization as something suggestive of importance and consequently of decorative availabliity.

There is an analagous case in the Leyden Museum, where the model copy of a Malay pirate vessel, armed with European cannon, has on the sides of its prow a scroll pattern distinctly copied in minor details from the Dutch Renaissance. I noticed a collier canal-boat in one of the Leyden canals, just outside the Museum, which had the identical pattern in the identically corresponding place. The canal-boat had derived the pattern traditionally from earlier and more important Dutch vessels and Dutch East India traders. From these the Malay had borrowed it, because he obtained originally his powder and cannon from the Dutch. The curious point of this instance is that the general motive of the same pattern had reached the Malays by way of India, through Mohammedan art, derived from Byzantine. The Dutch pattern was derived from Spain and Italy, which latter country had taken it from Roman ruins. In this particular instance points as far removed as Holland and the Byzantine provinces of Egypt and Syria—periods as far removed as the time of Mohammed and the Dutch sixteenth century Renaissance—had both transmitted to the Malay Archipelago a design which can

* Isaac Taylor, "The History of the Alphabet."

be found on modern Dutch canal-boats and on the temple ruins of the Empire of Alexander the Great, and which is historically traceable in both cases to the culture influences of Egypt.

Historically speaking, all copying of art forms results from historic waves of civilization, which carry with them comforts and improvements in material living which are of use to the copying people. This holds especially of the diffusion of the arts of metal. It is highly probable that these have traveled from one original centre over the entire world. In other words, trade and commerce are the essential factors of the problem, and the history of ancient ornament as traced to Egypt is really the history of commerce and of civilization. The ascendancy of the superior civilization manifests itself in various exterior ways, of which the copying of forms of art is generally the most obvious, and the most lasting, *as regards the question of evidence*, but the main factor must always be essentially the civilization itself. The prehistoric "Bronze Age" of Europe copied its prehistoric patterns from the South and South-East, because the arts of metal, displacing the use of stone implements, also spread from this quarter (according to my contention). What the Greeks were really learning from Egypt in the Second Millennium B. C., was the arts of civilized life, but the evidence of the commercial intercourse survives in the lotus patterns which the commerce carried with it.

I have thus devoted two Essays ostensibly to the ornamental evolutions of the lotus, one of which (the first) offered no proofs for any evolutions whatever, while the second has related entirely to the historic continuity and traditional survival of certain patterns, as opposed to a theory of the spontaneous generation of the same, and as to the origin of these patterns I have said nothing. However, the most difficult part of my task is done. Within the limits of Greek and European prehistoric art, it is a question of proofs which are very easily offered, and which to my mind are perfectly convincing. I shall approach these in my next Paper.

Wm. H. Goodyear.

(TO BE CONTINUED.)





Group, from the Albert Memorial, London.

THE INFLUENCE OF THE EARLY RENAISSANCE ON SCULPTURE.

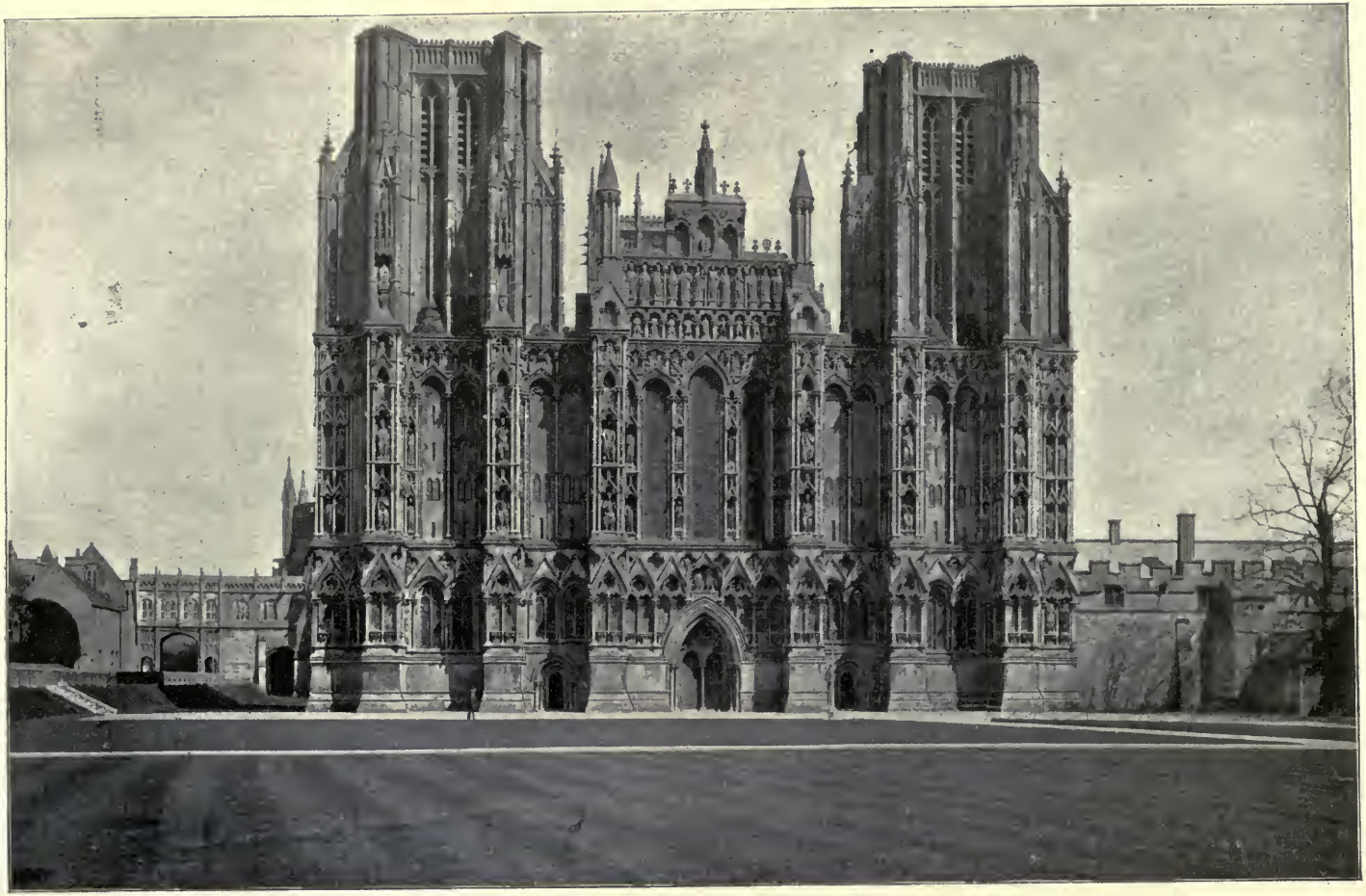
THE art of sculpture has had a checkered career, nor can the contemplation of its past history gratify the pride of the English race, to the same degree as that of architecture and painting.

To seek out in detail the reasons for this inferiority would carry us beyond our present purpose, which is to look no farther back than will justify our hopes and expectations for a more glorious future, which will be affected by that same development of the early Renaissance which we have already traced in our architecture. In a striking passage in Mr. Symond's "Art of the Italian Renaissance," is set forth the idea that while the art of the Pagan world was sculpture, that of the Renaissance was painting, and that of the modern will be *music*.

This thesis he supports by arguments drawn from the religious changes of the world, setting forth that Christian ideas, being abstract and of the soul rather than of the body, could not be adequately expressed by sculpture, which he holds to be incapable of expressing the emotions, beyond certain elementary stages.

He then shows that painting has a wider scope and was equal to the thought of the Renaissance, but that the increasing abstraction of modern ideas has passed beyond this stage, and thus music, with its double character, "La musica e il lamento del amore, o il preqhiera dei Dei," and its universal message, appealing to all nations, irrespective of language, is the predominant art of the modern world.

Now, to this exclusion, as it were, of sculpture from a future and from the expression of Christian ideas, he makes one exception, namely, the class of tombs, for here the now soulless body has returned to that state of peaceful calm and repose which the Greeks found so essential to sculpture, and we shall see in our brief review of English



WEST FRONT, WELLS CATHEDRAL.

work how large a place is filled by the class of monuments and tombs.

If in England we have had no Michael Angelo in sculpture the cause is that we have had no Nicola Pisano. No art in England is so entirely imported; architecture in all countries has roots in the soil, but sculpture and painting are far more external. Now, of the Roman remains found here sculpture forms an insignificant part, several rudely-carved altars and tombs being the most important objects. Moreover, the religion of the Druids does not appear to have been idolatrous, and Stonehenge contained no idol. When Nicola Pisano started the revival of art in Italy the classic sarcophagi and vases in the Campo Santo at Pisa were the sources of his inspiration, but our sculptors had to borrow from France, along with the elements of Gothic architecture, the means of producing the wonderful semi-architectural sculpture of Wells and Lincoln.

It is an unfortunate necessity of the modern state of sculpture that we are compelled to distinguish between pedestal and architectural sculpture, that is, between statues and other work, intended to be complete in themselves, as opposed to sculpture intended to group with and form part of the architecture of a building.

It is safe to assert that there are no examples of importance of pedestal sculpture of the mediæval period in England, for our tombs even have a large element of architecture, as in the well-known Bridport Tomb at Salisbury and as in those of the Tombs in the choir at Westminster Abbey, where the relations of Henry III., the royal builder of the choir, repose in shrines of purest harmony with the sacred edifice. In fact, we may say that mediæval tombs are miniature buildings containing panels and spandrels ornamented with sculpture.

But, valuable as are the lessons taught by them and by the wondrous façades of the cathedrals at Wells and Lichfield, both as to the distribution and harmony of architecture and sculpture and as to the extent to which liberties must be taken in treating figures at such an elevation, still we cannot say that we had advanced very far in sculpturing the figure. The famous angel choir of Lincoln shows work of a higher quality, the spandrel angels are designed in powerful lines of contrast to the spaces they occupy, and have a dignity of purpose and expression worthy of our respectful admiration.

A still higher level is reached in the Angel of the Annunciation from the entrance side of the octagonal Chapter House of Westminster Abbey, where "Christ in Majesty with Angels attending" occupies the quatrefoil of the entrance arch, flanked above by the Madonna and this Angel, in upright trefoil-headed panels on either side. Its dignity and simplicity will recall to our readers the best French work of Notre Dame and of Rheims, and must be ascribed to the same French influence which so largely shaped the characteristics of the Abbey.

An architect is naturally inclined, perhaps, to dwell too long on these great works, while a sculptor, jealous of the qualities of his art, independent of Architecture, sees too often only a want of anatomy and grace, rendering them insignificant beside Greek and Italian statuary, and so no art has been so much studied abroad as sculpture. Flaxman, Gibson, Chantry and others, down to Alfred Stevens, in our own day, all spending long years in Italy mastering the secrets of their art.

We find, however, a high development of architectural sculpture within the possibilities of the knowledge then possessed in England, in the numerous tombs, often perfect gems of art, which exist and were still more numerous formerly in our cathedrals. The lamentable destruction of many shrines, tombs and images during the Reformation and Puritan times has deprived us of many masterpieces, and the effects of these movements were long, and are now felt in a prejudice against the use of sculpture for the highest ends.

Before, however, the events alluded to above, came the beneficial influx of Italian ideas and artists in the reign of Henry VIII. Chief of these artists was Torrigiano, contemporary of Benvenuto Cellini and Michael Angelo.



CRUSADERS' TOMB, WESTMINSTER ABBEY.

How he broke the nose of the latter in reply to an unfavorable criticism of his works is well known, and may serve to caution us in our remarks later on.

In his most valuable and curious biography, Cellini tells us how he refused to go to England with Torrigiano on account of this very fracas, which caused him to hate violently the base insulter of his hero, Michael Angelo. It is true he also detested "Questi diavoli d'Inglesi," but he did not all the same get on any better with the French, and had he come to London, instead of to Paris, our art might have greatly benefited. Much of the work of that period was unhappily lost when Henry VIII.'s favorite palace of Nonsuch was destroyed. It was a timber building filled in with plaster panels containing some hundreds of single figures in low relief. Any one who knows Italian Art will realize what a glorious work it must have been; when deprived of their accustomed marble the Italians applied their wonderful gift of low relief sculpture, with the greatest effect to the facile plaster. We have, however, a masterpiece by Torrigiano in the marble and gilt bronze Tomb of Henry VIII. in his Chapel at the East End of Westminster Abbey; this work, inclosed in its grille, forms one of the most complete examples of the early Renaissance applied to Tombs; the stately pomp, but pious treatment of the King and Queen shows the transition between the devotional simplicity of the mediæval and the vain-glorious pomp of the later Renaissance treatment of man's last resting place. Torrigiano also executed other tombs, using the same black polished marble and gilt bronze with a similar style of detail.

Now it has been said that the next great sculptor in England was Alfred Stevens. We cannot, however, make quite such a jump as that, for we have to allude to the great group of Elizabethan and Jacobean tombs, from the best of which, indeed, the later sculptor derived the leading idea of his masterpiece, the Wellington monument.

It is to the filial piety of that amateur of Art and Learning, James I., that we owe the tombs of Queens Mary and Elizabeth and also that of his mother, Mary Queen of Scots. It was a characteristic stroke on his part to bury three Queens in two tombs, but we need not complain, seeing how good the two are.

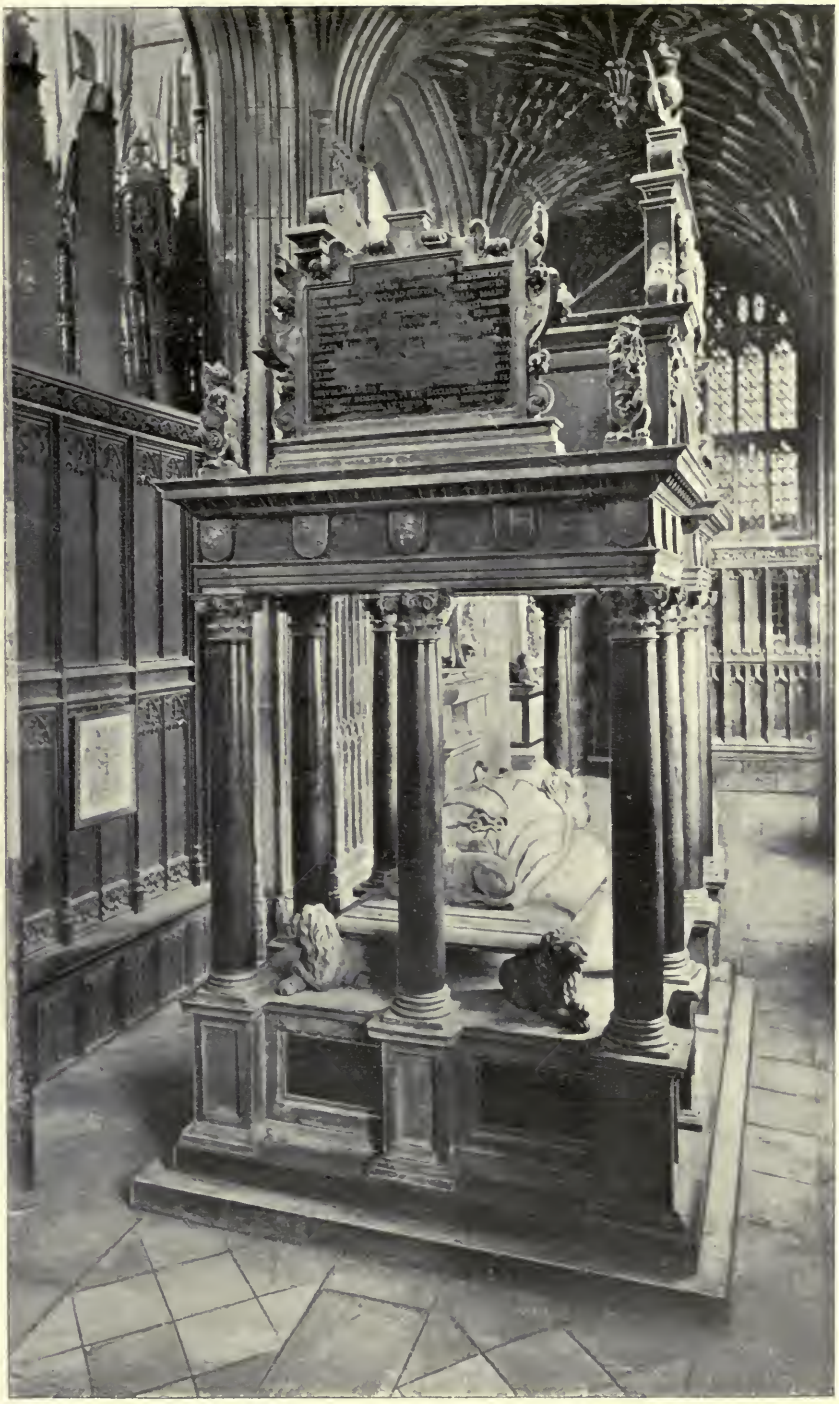
The stately canopy of pure classic orders and details shows the advance that Italian ideas had made by that period, and the general shape recalling a triumphal arch seems not inappropriate for the Christian who has conquered death by dying, and is resting in calm repose beneath the Tabernacle, his face turned to the coming dawn. These two tombs, however, are above the level of the Elizabethan tombs in general, even that in the background, to which we shall now allude. Its detail and execution are more advanced than others—delightfully quaint and naive, where father and mother and diminishing row of children, all in their everyday clothes, quaintly colored in brightest tints, kneel piously praying for that mercy they seem to us surely to have gained. The Norris family at least claim our sympathy; their tombs in the background show us father and mother and six kneeling stalwart sons, five of them clad in armor as they died on the field of battle, for king and country, and a sixth, beardless alone of all the group, with cheerful uplifted face, as became the survivor of such a family, active and vigorous, rejoicing in existence, untroubled by the cares and doubts with which we spoil our often purposeless lives.

Here then we reach the summit of our ancient art, and crossing the Puritan gap we must reascend to the level to which our modern artists have carried us at present.

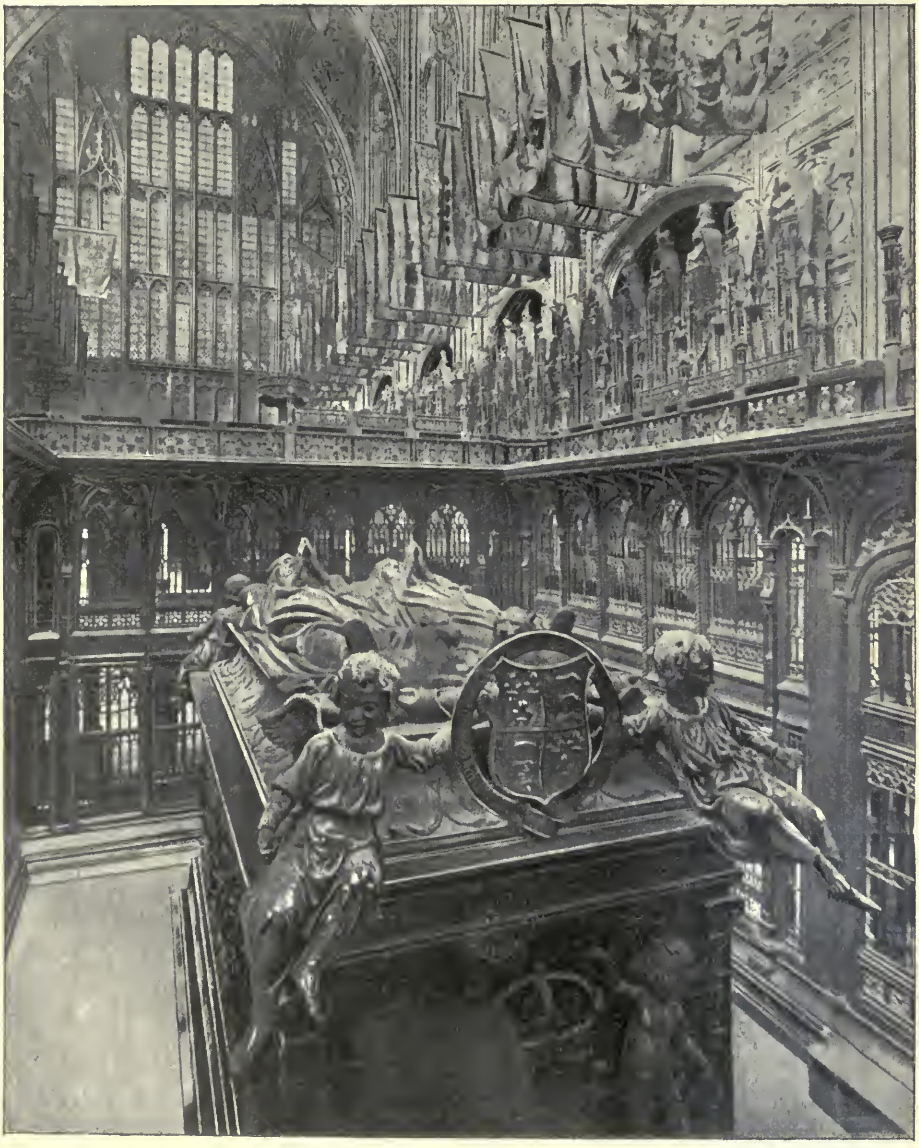
The period of the Restoration was one of relaxed efforts, the high earnestness, the overstrained force of the previous generation was followed by the natural reaction of a mockery at all serious effort. Wren alone of the artists of his day was inspired by noble ideals, but he woke no echoes in the sculptors of his time—the Pediment of St. Paul's contains merely a rococo bas-relief of the conversion of



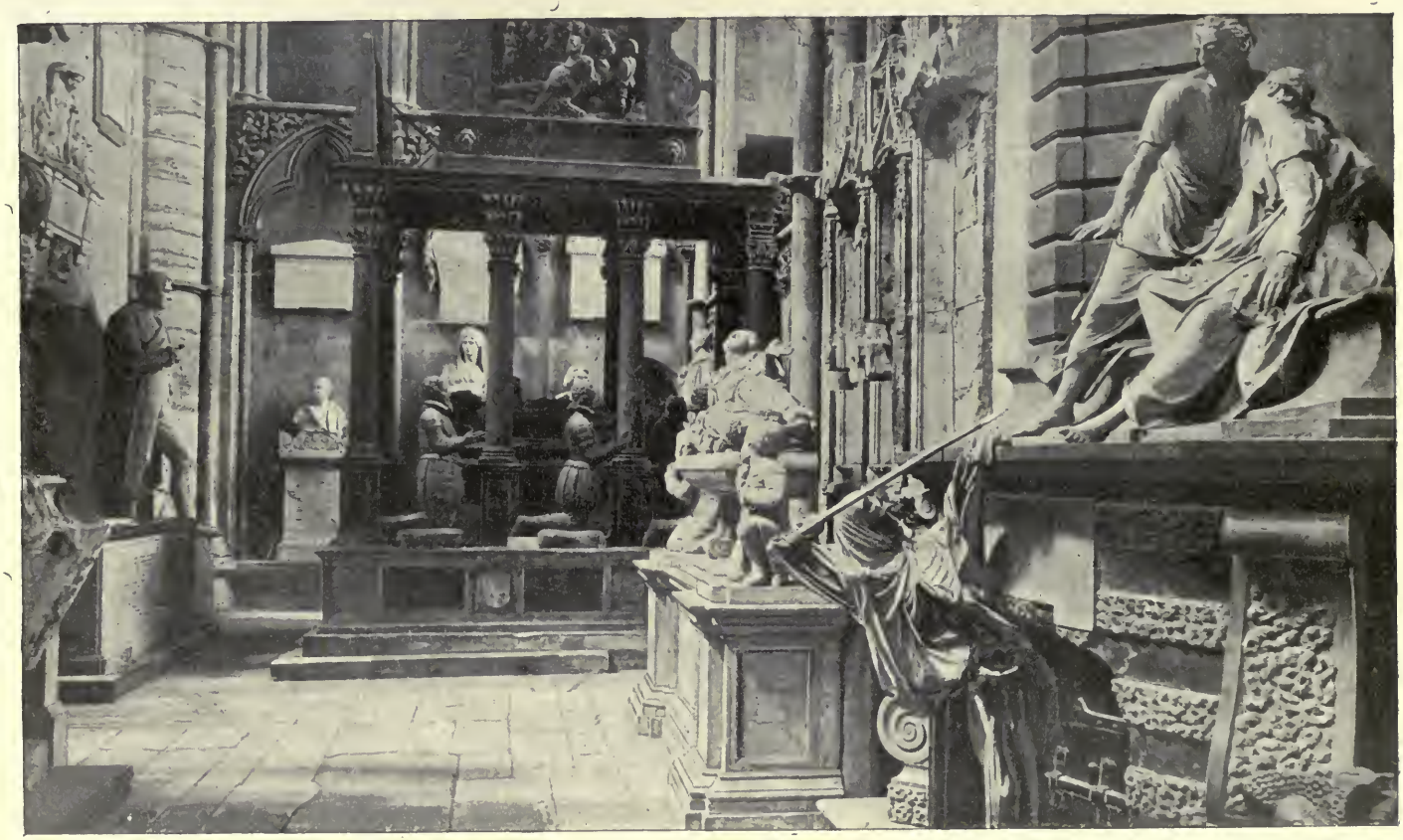
CHAPEL OF QUEEN MARY, WESTMINSTER ABBEY.



TOMB OF QUEEN ELIZABETH, WESTMINSTER ABBEY.



HENRY VII. CHAPEL, WESTMINSTER ABBEY.



CHAPEL OF ST. JOHN, WESTMINSTER ABBEY.

St. Paul, possessing only a certain picturesqueness, in common with the group which accompany it on either side. The most notable effort of Gibbon, the sculptor of the period, was the statue of James II., at Whitehall, where the King figures as a laurel-crowned Roman general, toga and armor and all to match, a work in bronze on a stone pedestal.

The efforts of sculptors were then principally turned to monuments, hundreds of which are plastered over the walls of our old cathedrals, Westminster Abbey receiving a large share, the most popular being the nightingale monument of Roubillac, who, though born at Lyons, executed all his work in England, where he died in 1762. We must be forgiven if we hurry on from this period to that of Flaxman, in whom pure outline found perhaps its finest exponent; his illustrations to Homer are too well known to need more than a reference. His physical weakness prevented his executing personally his own sculpture and led him to invent the pointing machine by which sculptors have been enabled to abandon the chisel, to rely on modeling alone, which is, architecturally considered, a falling off from the practice of Michael Angelo and the old sculptors.

Chantry is better known as an artist than Flaxman, which is perhaps due in part to the literary skill of his assistant, Allan Cunningham, and to the large fortune which he amassed by his art and left to the Royal Academy for the annual purchase of works of art, both causes contributing to preserve his fame. Of his work, the Sleeping Children, in Lichfield Cathedral, is perhaps the best known and most popular example. The children are portraits, which is held to excuse their want of beauty of feature. Another well-known work of Chantrey's is the monument of Judge Mansfield, in the Abbey, which would be better appreciated if it were placed in St. Paul's. Gibson was perhaps a greater artist, if the closeness of imitation of Greek work be the test. There is a group of his in the Houses of Parliament, which illustrates the position of sculpture in relation to architecture at this period. Everyone whose artistic instinct is even moderately developed recognizes at once upon seeing the work that nothing could be more inharmonious. The Greek character of the work is destructive by its scale and feeling of the Gothic background, and the whole room seems crowded by the importance given to the statuary.

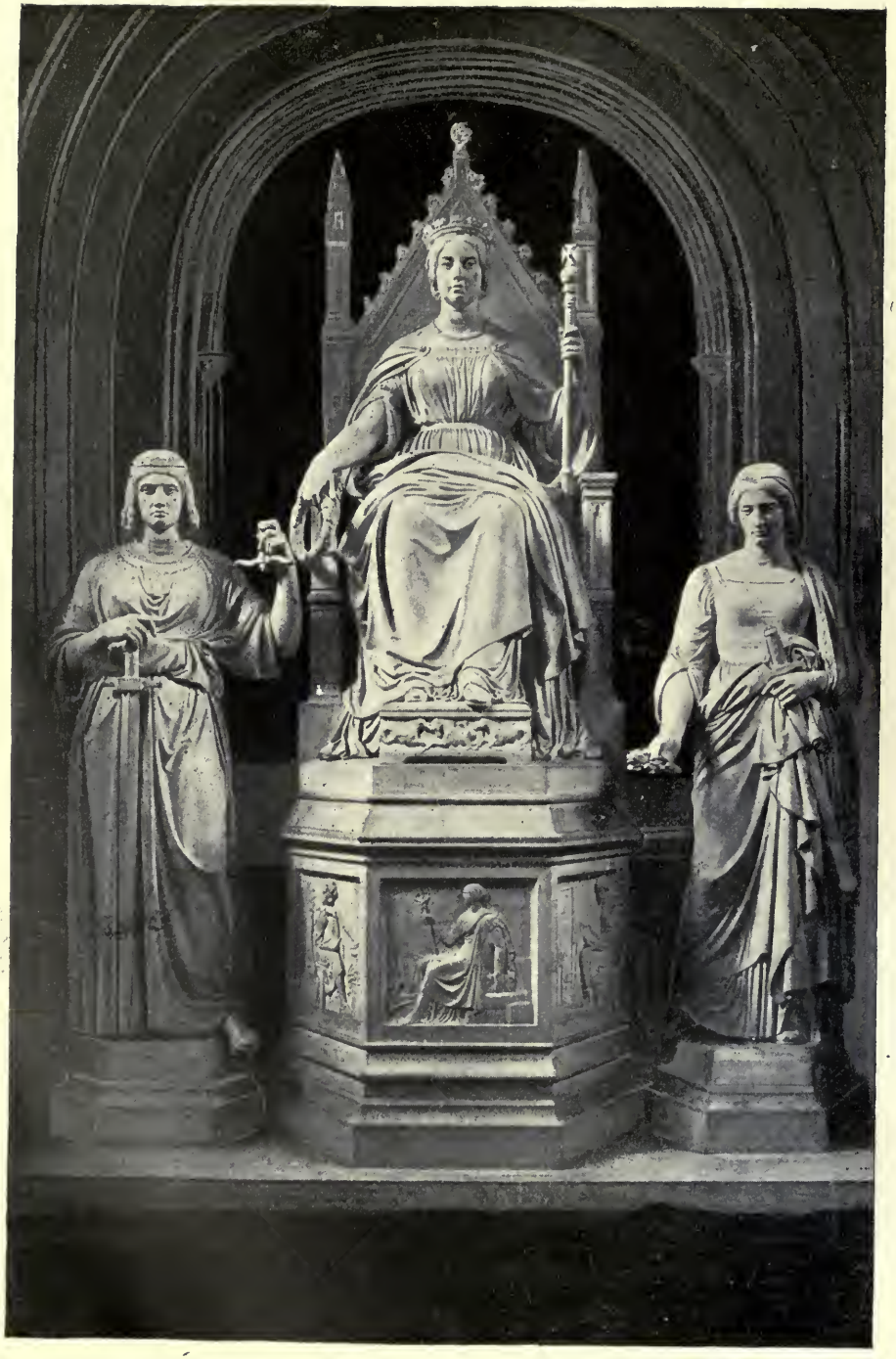
The Gothic Revival in fact had no counterpart in sculpture; there was perhaps too little to go upon, hence sculpture fell into the hands of a new race of inferior carvers, who produced regiments of saints and kings, at so much a head, generally doll-like in size and vacuous in expression. We should perhaps except Thomas, the sculptor of the Houses of Parliament, whose figures on the façades of that building accord



The original plaster model of Marius in South Kensington Museum, by Bailey, R. A.



THE SLEEPING CHILDREN, LICHFIELD CATHEDRAL. BY CHANTRY.



QUEEN VICTORIA (BY GIBSON), IN HOUSES OF PARLIAMENT, LONDON.

with the style, though perhaps not in themselves of very great value. Thomas was one of the masons employed for the building of Birmingham grammar school, of which Sir Chas. Barry was the architect, and by whom he was brought to London, where he worked for the Westminster Palace; afterwards he attempted architecture and sculpture of his own, the fountains in Kensington Palace being perhaps his best work.

of study in your art schools, but to us the head of Marius is a painful reminder of the long stumping by which we reproduced Menelaus' ugly countenance, and Eve seems to have been a sister of Venus, which accounts, perhaps, for her fall.

We feel unequal to a serious treatment of this art; we offer our pen to the critics to fill in at their pleasure. There was of course some good work



Eve Listening. South Kensington Museum, by Bailey, R. A.

If sculptors then had not much share in the Gothic Revival, they found in the great Exhibition of 1851—that turning point in English art—an opportunity of displaying the unaided resources of sculpture. We regret not to be able to show other examples of this period, but the work of Mr. Bailey, R. A., which we give above, will enable our readers to judge of the Venuses, Eves, Adams, and Apollos, that now decorate—fortunately only in plaster—the Crystal Palace at Sydenham, and are a legacy from the great Exhibition.

We have no knowledge of the course

produced, but we may safely say it was on the wrong path. Architects have repented and turned from their evil ways and so have painters, but the movement of sculptors is slower and the traces of a reformation are not so clear as we could wish.

Amongst a domestic people, living mainly in small houses, there is small scope for semi-Grecian statuary. It savours of affectation to adorn the home with the conventional product of the studios, borrowed from the art of a people whose habits of life were the reverse of our own. Even in our

large country houses, the want of harmony between such work and the usual architecture is clearly felt; for instance, look at the classic statuary in the corridors of Eaton Hall, Cheshire, or any other modern Gothic hall, while the device of a sculpture gallery annexed has the savor of the pedantry of a private museum.

In our conclusion we shall dwell on what seems to be the remedy, namely, a reduction of scale, a change of detail and feeling and a greater practicality of aim.

The Venus we want, if we must have one, is the "Venus of Botticelli," not "of Canova," and the difference is the measure of that influence of the early Renaissance we wish to see in our sculptor's work.

The problem of the reconciliation of the ideal products of the studio, with the conventions and limitations of our houses, and home life, is for the sculptor to solve. What for our daily life have they to offer us? Nothing of beauty is superfluous in this dull monotony of ugliness, which we confess to form three parts of this London of ours. Surely in vain we cover ourselves in the sweepings of the old world, but the most successful hunter of curios has least adorned his house. The dry-bones of dead art are in place only when in the museums or the studios. Sculpture co-operating with architecture can fill the void and, working of itself, can on the lines of the true Renaissance also solve the other parts of the problem.

Let us drive out the inane French bronzes that occupy our mantel shelves and let our sculptors give us instead ideal work, two feet instead of six feet high, as Sir Frederic Leighton has lately done with the "Sluggard" and the "Python Slayer." We welcome this step in the right direction, and we regard the movement amongst architects in favor of the early Renaissance still more favorably, for the profuse detail of that style is the joint product of architect and sculptor, as in the façades of the Certosa at Pavia, and countless other examples of the same period. In wood and metal, in plaster and marble, in furniture and fittings lies the field for good work, demanding the highest skill in the use of the figure, if the characteristics of the best period of the early Renaissance are to be preserved.

That the degraded state of sculpture in England in the past has been due to the absence of feeling for detail and accessories is very evident, and has lately been curiously emphasized by the work of Mr. Alfred Gilbert, A. R. A., whose monument to Professor Fawcett in Westminster Abbey contains as much thought and skill in a few square feet as would once have sufficed to block up the whole wall of a cathedral with an unmeaning mass of allegory. Allegory has been a grand snare to former sculptors, a veritable "Triumph of Allegory" has defaced our cathedrals with monuments in which our heroes play the smallest of minor parts along with Neptune, Britannia and the other members of the Allegory Company. A violent reaction against such work has endowed us with the still more monstrous "portrait" statue, the adornment of the Thames Embankment, where the heroes of this generation, in brazen boots and cheap tailoring, address to invisible crowds the same boring speeches which they uttered when alive. In the midst of such a wilderness of misapplied art the statue of the Queen at Winchester, by Mr. Alfred Gilbert, A. R. A., displays the true application of the early Renaissance; the elaborate architectural treatment of the Throne with its niches and figures is contrasted with the simple handling of the flowing robes. In this excellent work we may see how the life-like portrait of the Queen is enhanced by such masterly characterization; while a glance at the back of the Throne demonstrates that no labor has been spared to give that sense of repose which is induced by completeness of detail and design.

No work of art can be complete without the greatest possible amount of thought being bestowed on it, and this is one of the many great qualities with which all Mr. Gilbert's work seems to be imbued. This application of thought takes time and requires patience on the



HOME OFFICE, LONDON. SCULPTURE IN SPANDRILS BY ARMSTRONG.

part of the public; but what matters it if the public do have to wait a year or two longer for the Shaftesbury memorial at Piccadilly Circus; if, when it does come, it is a "thing of beauty and a joy forever."

The skill of using the past in the work of the day is one of the greatest needs of the present age. We want on the part of our artists a personal force, that fuses the elements we have to deal with, and re-creates from them the work of art in its completeness and harmony. This power is what raised such an artist as Alfred Stevens from the ranks and enabled him to produce the work we shall allude to later on.

The co-operation of architect and sculptor is another most urgent need of our art to-day, and we now propose to glance to some recent instances more especially to illustrate the influence of early renaissance ideas on them both. In our mention of the Gothic Revival we have alluded to the small share that sculptors had in it, not but that much talk was then as now common on the subject among its professors, resulting, however, in little besides the Albert Memorial in Hyde Park.

In Sir Gilbert Scott's notes on his own life he praises warmly the work of Mr. H. H. Armstead, R. A., the sculptor of much of the great bas-relief frieze which forms the leading feature of the design.

We may take this to show that, so far as they were concerned, harmony reigned, and the architect found adequate support in carrying out his design. Of the groups at the angles, it is impossible to speak so favorably; undoubtedly the best is Asia, by Foley, R. A., which we give above, and had he lived to complete the central statue, the result would have been other than it is. Americans may complain, with justice, of the sensational vulgarity that characterizes the group representing their continent. Mr. Armstrong's ability is also shown in the Home Office, Whitehall, where his vigorous spandrels give value to a not particularly significant arcade—his work, in fact, is characterized rather by vigor than grace, a fault, however, the reverse of the usual failing of the English school. The two figures of Moses and St. Peter in the restored reredos of the Abbey are also by him, and show perhaps more clearly than the Albert memorial, that his work has not too much Gothic feeling; the latter is, in fact, so Italian in character that the sculpture of that day accords sufficiently well with it, while it may serve to show that any employment of sculpture and architecture together, on a large scale, really involves a strong Renaissance bias.



Asia. By Foley, R. A. From the Albert Memorial.

It is a pity that the opportunity afforded by the Law Courts for testing this point was not availed of by Mr. Street, but it most be ascribed to the parsimony of the government that the sculpture of that great building is so slight, consisting only of a few gable statues. Inside, however, in the great Gothic vaulted hall, Mr. Armstead has executed a cenotaph to Mr. Street, its architect, and how far it accords with the surroundings may be seen in the illustration. We shall close our notice of this sculptor's work by an illustration of a recumbent figure for a tomb which has another in-

terest in that this is the style of monument, mostly in favor, in our day, for such memorials; the undoubted gain in reverence over the memorials of the preceding age will not be disputed, though it is surely by no means the last word of sculpture for Christian tombs.

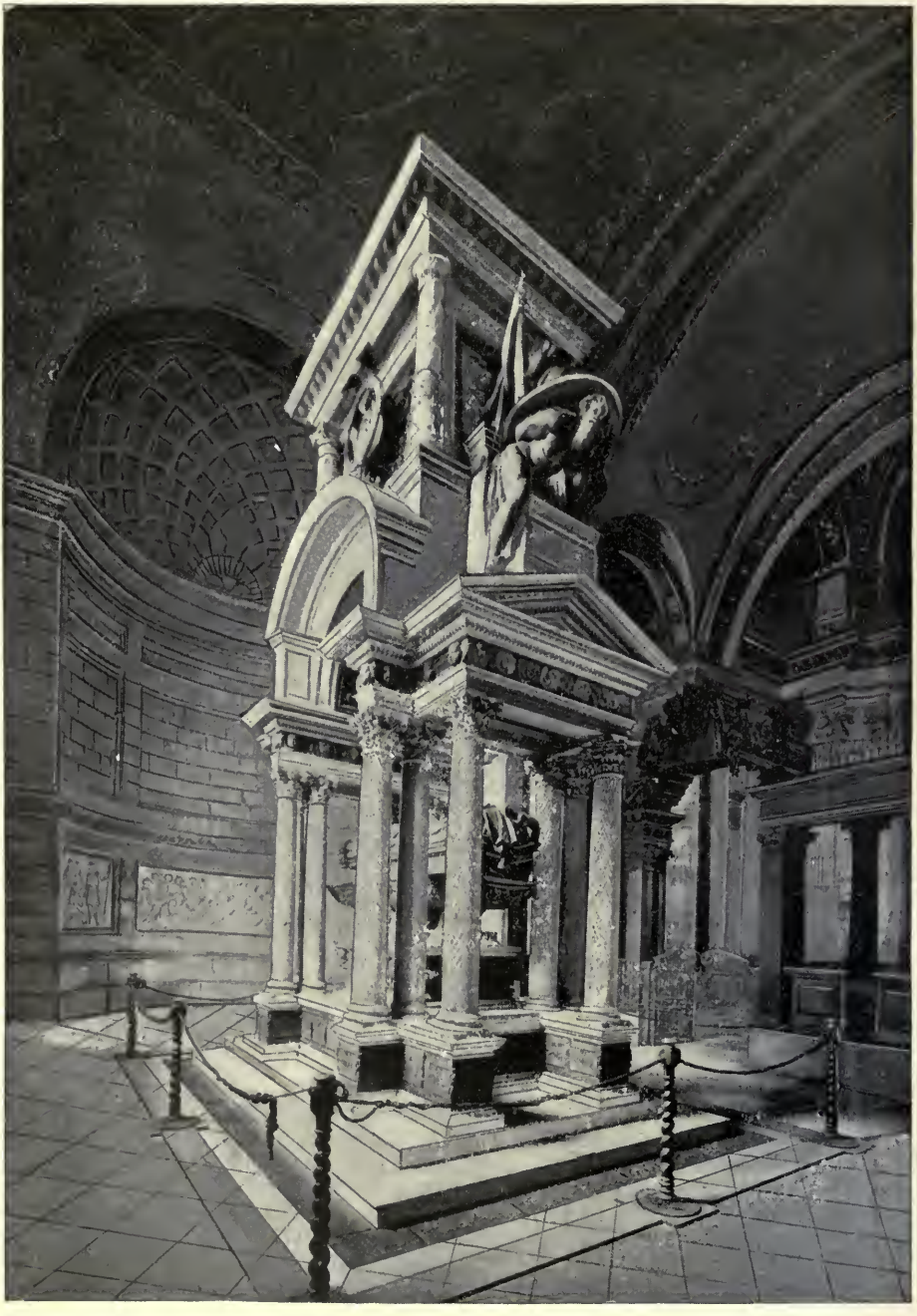
Among important modern buildings, the Glasgow Town Hall errs perhaps by the novel fault of using too much sculpture, if such be possible, at least it has been said that the interest of the building is on that side. Other recent works have not certainly that failing; the Birmingham Law Courts façade has in the gables some good modeling in terra-cotta, which, indeed, seems the very material for the modern sculptor, as his own work can be rendered durable, without the translation into stone or marble by another man. It is to be hoped that the same architect will give us in the new buildings of the South Kensington Museum, a good example of its possibilities. One of the competitors for that building, Mr. John Belcher, showed a band of most graceful figures along the front, apparently designed by a sculptor, in fact a group representing Science, by Mr. Thornycroft, R. A., adorning the new building for the Institute of Accountants, in London, has been illustrated in this journal, Mr. Belcher being the architect. Another work, illustrated in THE ARCHITECTURAL RECORD, was Mr. Pegram's Sibylla Fatidica, and our readers will turn to it with interest when they realize that he is engaged on the sculpture of the Imperial Institute. This last named Early Renaissance and very modern building is now very familiar to art students and is approaching completion. Mr. Pegram's work is principally in the main porch, a large figure of Navigation represented by a female figure seated on a Bench corresponds on the return jamb of one side to a similar figure representing Manufacture on the other.

It is too early yet to judge of the results of this instance of co-operation between sculptor and architect.

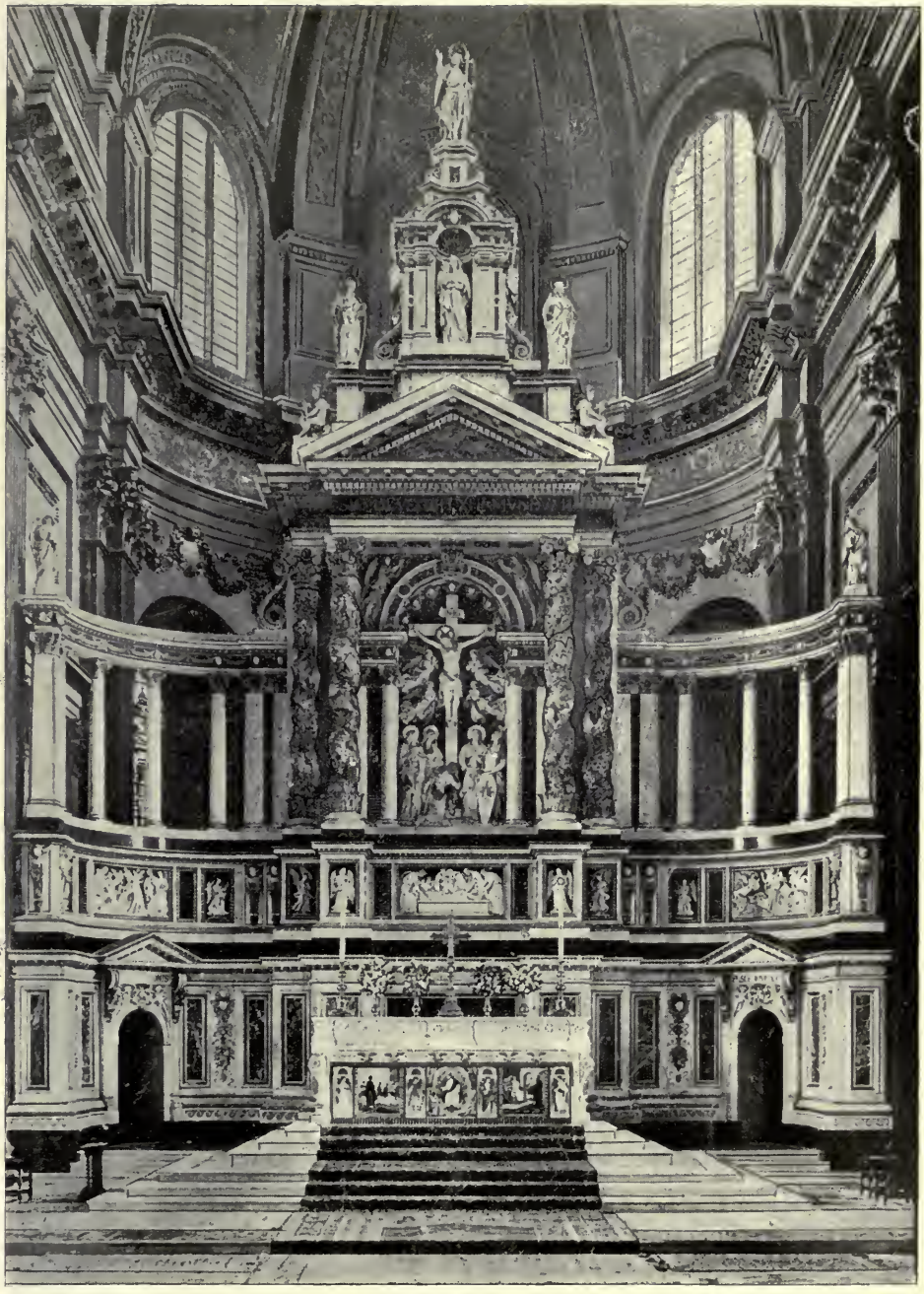
Since the Albert Memorial, the reredos of St. Paul's Cathedral has been perhaps the finest chance for combined work. In this instance we seem to feel the want of greater freedom and scale on the side of the sculptor. We believe we shall carry with us all lovers of Italian art when we assert that however great the defects of Italian and Spanish reredos they, at any rate, are right in the tendency to predominance on the part of the sculptor's art. Imagine, for instance, such a sculptor as Alfred Stevens sharing in this work at St. Paul's, and we shall see at once how inadequate is the mere carving of the present reredos in comparison with the figure work that would have taken its place. We say this, not wishing to depreciate the merit of the actual work, but rather lamenting the boundaries imposed by the architectural scheme. At any distance the panel work is lost, in spite of the questionable device of colored backgrounds, which, in regard to the black painting of the main pilasters, is now about to be removed, with the concurrence of the architects, Messrs. Bodley and Garner.

The reredos of S. Giovanni e Paolo, at Venice, perhaps the finest of late Italian examples, with other and even bolder instances of united architecture and sculpture will readily occur to our readers, and the use of the more refined detail of the cinquecentist need not surely deprive us of the scale of the later work.

The Wellington Monument, by Alfred Stevens, in St. Paul's (see page 436) illustrates our argument; the miserable mistake of the position of this masterpiece prevents any adequate photograph or view being obtained, the views, however, enable me to show what folly it is to place such a work in a narrow and contracted chapel, instead of below one of the main arcades to the nave, the position for which it was designed. Surely it is not too much to hope that, as the fame of the artist increases with each succeeding generation, the wider appreciation of his masterpiece will cause a successful movement in favor of placing it in the true position, where it will form one of the glories of the Cathedral. It will be seen that the tomb consists of marble and bronze, and belongs to the same class as



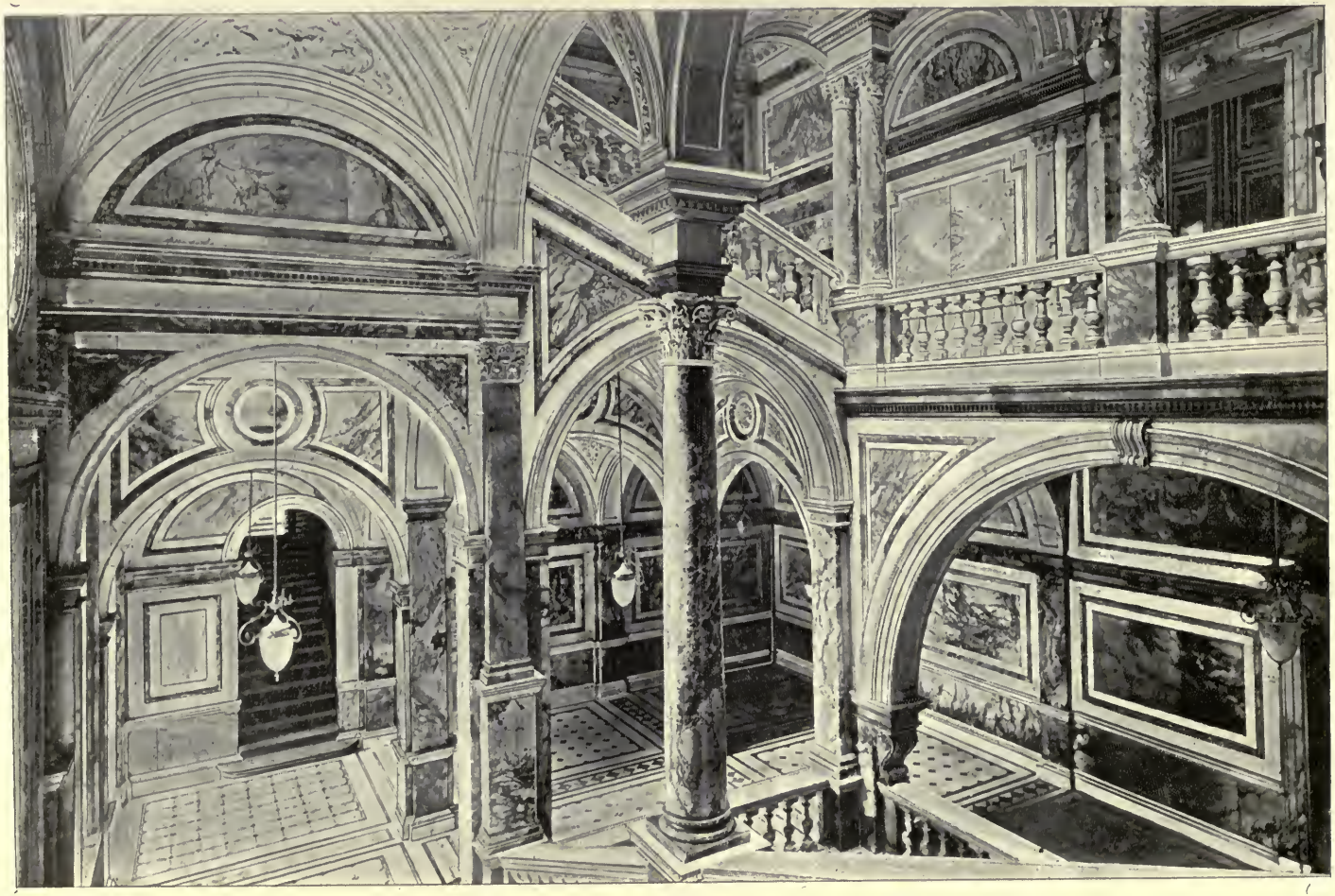
THE WELLINGTON MONUMENT, ST. PAUL'S CATHEDRAL, LONDON.



THE REREDOS, ST. PAUL'S CATHEDRAL.

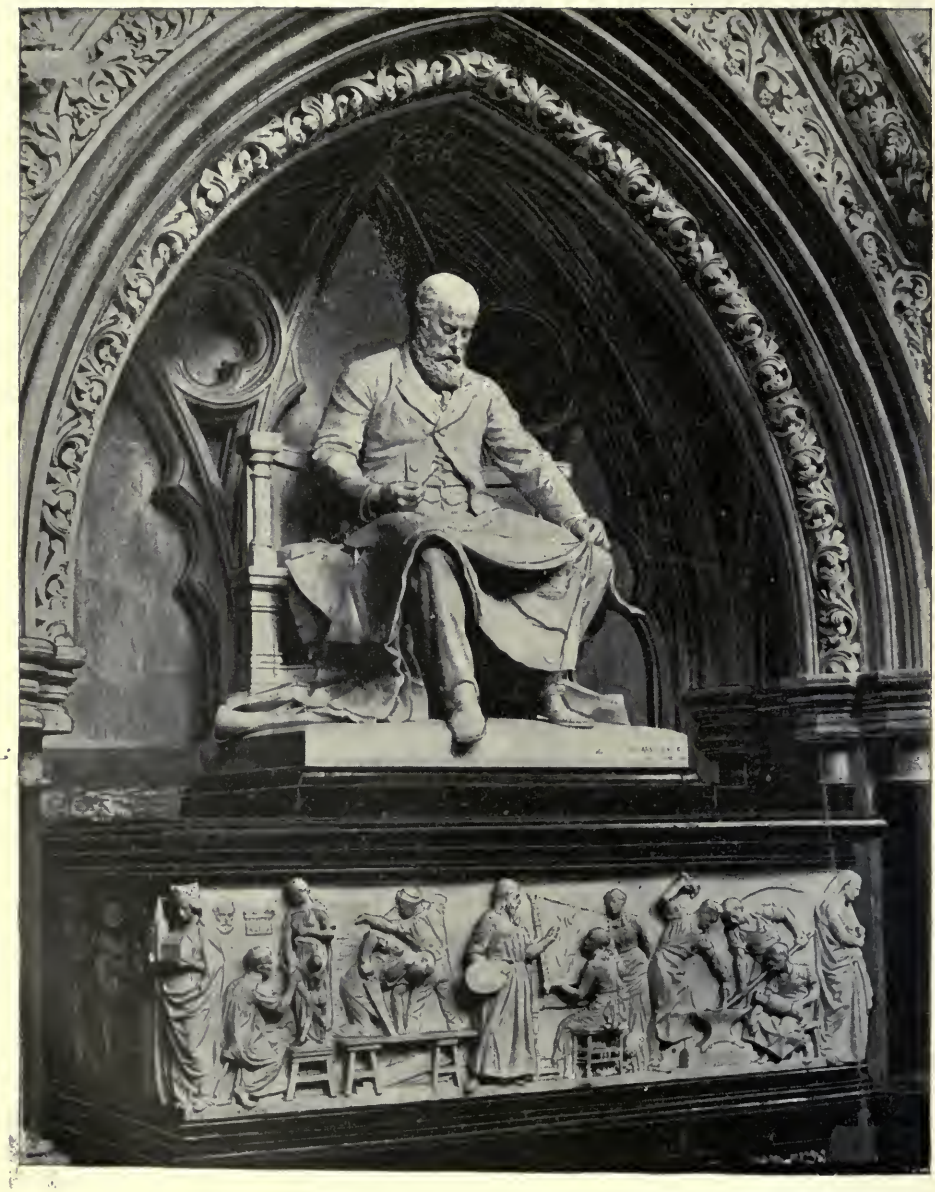


MUNICIPAL BUILDING, GLASGOW. William Young, Architect.



PRINCIPAL STAIRCASE, MUNICIPAL BUILDING, GLASGOW

William Young, Architect.



CENOTAPH TO STREET, BY ARMSTEAD, IN THE LAW COURTS, LONDON.

the Jacobean tomb described and illustrated before.* Where it differs is in the masterly combination of sculpture of the highest class and on the largest scale with the architecture. This feature lifts the whole work at once far above these monuments, and also above the latest Italian altar pieces, where the sculpture and architecture is of a debased type.

It is also analagous with the grand Italian Tombs of the middle ages and of the Renaissance, as at Verona and Venice, but it is unique in possessing ideal groups as the Valour triumphing over cowardice, shown in our view, and the Truth pulling out the tongue of Lying at the corresponding end, on such a scale and in such a magnificent form. The peaceful calm of the Duke himself on his finely treated bier will also deserve attention, and that general unity and appropriateness of detail, the want of which has so often been alluded to in former work, cannot be too highly praised. The crowning of the monument remains uncast, thanks to a foolish joke by a former Dean to whose ignorance of art, even in England, it appeared a strange thing that a man should be on horseback on the summit of his own Tomb. It is now proposed to cast this crowning statue so that the monument when moved may be seen in all its perfection in its true position beneath the nave arcade. We regret that we are unable to illustrate other works of this artist, but photographers in England are nearly all concerned only in what the public, understood in the narrowest sense, will buy, but we would refer our readers to two books of Alfred Stevens' work, the first by Mr. Armstrong, entitled, "Alfred Stevens, a Biographical Study," and of the later one, a splendid folio produced by the autotype process under the auspices of Mr. Hugh Stannus, it must suffice to say that nothing was too common for his art to touch, whether metal stoves, tile floors or china dishes, *all* were made to bear the stamp of his personality. Like an artist of the great period in Italy, all things he touched he adorned in a style in harmony with itself. His influence may be traced in the terra cotta and faïence detail employed in the present South Kensington Museum buildings where his pupil, Mr. Moody, was employed, and other buildings have owed much to his example. Little appreciated by the many in his own age, Stevens runs the risk now of that false praise of which imitation is in art, the expression. He is best praised and best followed by students who study as he did. Imitation of his personal manner will be as fatal as that of Michael Angelo was upon his followers and mannerists. Mediocrity is only too ready to shelter itself beneath the great name of a master—growing like the ivy, it obscures for a time the qualities of that which it clings to, and leads the ignorant to deny the tree for the ivy.

The independent system of study pursued by Stevens, living by himself long years in Italy, in itself a training far different to the atmosphere of art schools, raised him above that false pride which has existed too long in the minds of sculptors on the subject of the union of sculpture and architecture.

That a different feeling has of late been manifested by some sculptors, who have protested their desire to work with architects, in the adorning of their buildings, we may fairly ascribe to the influence of the Early Renaissance. The school of Bernini has yielded to that of Donatello, and sculptors like Desiderio and Nuno and others of the great fifteenth century are now honored to an extent that the last generation would have deemed incredible.

The growing wealth and costliness of modern building enterprise render feasible an elaboration of detail of the highest class, that formerly would have been deemed impossible, except in such extreme instances as the Houses of Parliament, in which case, however, the architect had to support many grievous reproaches on this very account.

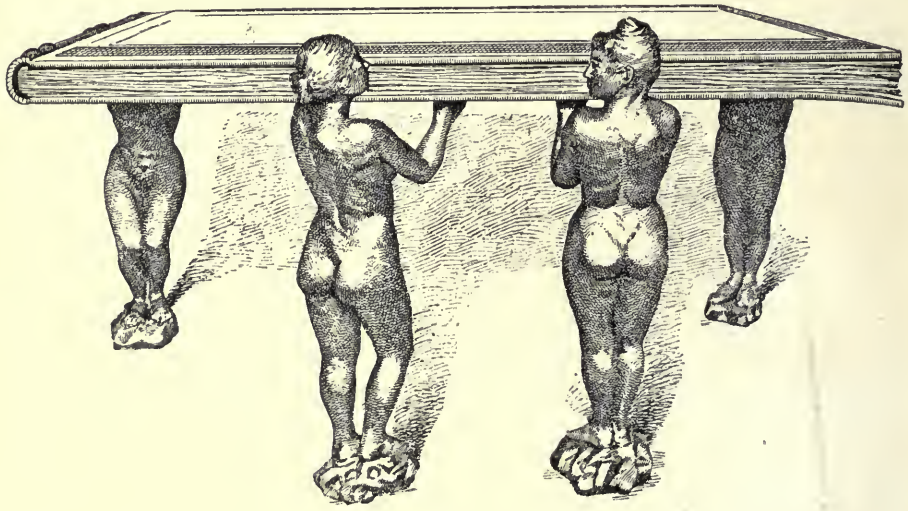
Moreover, the interiors of such modern buildings, their furniture and fittings, afford equally good fields for sculptural display of far greater art

* Even while I write the movement has now happily begun, having been started by a letter of Sir Frederic Leighton to the "Times," and is likely to be brought to a successful conclusion.

value than the independent pedestal statuary of the past age when the lessons of Greek work were misunderstood and the union of architecture and sculpture, so perfectly exemplified in the Parthenon remained unimitated, and the path of sculpture was lost.

Nor, as we said above, did the Gothic revival, that reformation of architecture, equally regenerate our sculpture; let us therefore hope that the grand lessons of the third great period of art, the early Renaissance, will not pass unheeded, but that English architects and sculptors, in union, may press on to scale these heights of art which have yet to be reached by the human race.

Banister Fletcher, Jr. A. R. I. B. A.





TOWER OF "MAIL AND EXPRESS" BUILDING.

New York City. Carrère & Hastings, Architects.



Chicago, Ill. WOMAN'S TEMPLE. Burnham & Root, Architects.



Buffalo, N. Y. ERIE COUNTY SAVINGS BANK. George B. Post, Architect.

SOME PRACTICAL LIMITING CONDITIONS IN THE DESIGN OF THE MODERN OFFICE BUILDING.

THIS term, "modern office building," is used to describe the mammoth structure, of many stories, that the conditions of our present business life require us to erect in all centres of population where the fever of money getting is permitted to have full swing, unhampered by any traditions that involve avoidable loss of time.

Whether this building is so high by reason of the desire of men of all callings to come as close to a given centre as possible, to the desire of men of similar callings to be as close together as possible, is due to the superior service that can be rendered for the same outlay, or is due to the necessity to procure enough rentable space to be able to pay interest on the total amount of money invested, might be discussed at considerable length, but is foreign to the present subject except in so far as it furnishes one of the limitations of the problem.

The elements that must be combined in the successful building are :

(*a*) Ease of access.
(*b*) Good light.
(*c*) Good service.
(*d*) Pleasing environment and approaches.
(*e*) The maximum of rentable area consistent with true economy.
(*f*) Ease of rearrangement to suit tenants.
(*g*) Minimum of cost consistent with true economy.

These may also be separated into two classes, those that particularly interest the tenant, which are the first four ; and those that interest both tenant and landlord, or the landlord alone, which comprise the balance. At

first sight it might seem as though the two interests were antagonistic, but a little thought will show that if the landlord sacrifices the tenant's interest he will in some ratio affect his own by reducing the value of the space he has to rent; on the other hand he may sacrifice his own interests in a way that will render it difficult to secure a proper return, by unnecessarily wide halls for example, and it is to establish a proper relation between these various elements that the following is offered.

(*a*) *Ease of access.*—This can be had either with a low or a high building, of which the latter only interests us. With the floors placed one above the other it is necessary that they be reached by elevators, and the solution of the problem depends on them almost entirely. First then, we would state that *the elevators must be placed so as to be reached directly from the street and only a few steps above or below the level of the sidewalk.* This rule holds true no matter what the character of the principal offices. Occasionally it will be noticed that some large financial institution erects a building for itself with about two-thirds of its space rented in offices, and for effect a very fine entrance will be made with imposing steps up to a platform several feet above the street, requiring every person entering the building to climb up before beginning the trip in the elevator. Second, we would state that *all of the elevators should be grouped together* unless the building is very long, is located so as to front on two streets of equal importance and is very high, and as a corollary of this, all of the elevators should be so placed as to be readily seen by a person standing in the middle of the space devoted to them, so that when he wants a car he can take the first. Instances of the violation of this rule and the annoyances thus arising are no doubt fresh in the reader's mind. The rule is correct even where it would seem to be desirable to have a double set on the supposition that at least half of the tenants would use one set while the general public would use the other, for the public who come to see the tenants are the ones who are to be most consulted really. To put this in another way, the time-saving device that requires a guide book to call attention to it is of but little value and its cost had better be saved or placed elsewhere.

Further on the arrangement of the offices and court is discussed, and it is there shown that the elevators should be so placed as to bring them about equidistant from the extreme offices; this is so, even when it makes a little walk for every one entering the building. Of course it would save for the average travel of the person entering the building to have the elevators near the front, but it would involve the sacrifice of very valuable room, and if a tenant wanted an unusually large area, it would make it very hard to accommodate him. Third, we have the cars, their speed, size, capacity, etc.

To determine these points practically, observations were made for the writer by one of his assistants of twenty of the better class of office buildings in the lower part of New York City, taking notes as to the number of stories served, number of elevators, number of offices, interval between trips, working speed, size of car and number of passengers, and an attempt was made to reduce the results to some uniform law. It will be seen at once that this is very difficult, as the service in each building depends upon the class of tenants. What would be good for one kind would be intolerably slow for another, and in the application of the following rules this condition must be remembered.

From the notes it was found that those buildings that gave the impression of a good service, had a car-interval ranging from thirty to forty seconds, so that the condition of good service would be that the interval between the trips should be such that in no case would it be necessary for a person to wait for a car longer than forty seconds. The next point was that the speed for this service was about 400 feet per minute, which would be 6.67 feet per second, or 1.87 seconds for the time required to travel from floor to floor, on the assumption that each story will average 12 feet 6 inches between floors. Now, independent observation has

shown that an elevator car travels from one-third to one-eighth of the time, the time spent in traveling increasing with the number of stories served and decreasing with the increase in the number of offices on a floor, so that while two elevators could easily accommodate 150 offices, if they were placed in eight stories, they could not do so if there were but two stories, unless the size of the cars was very much increased. The time that the elevators are not running will thus be seen to fix the number, as well as the size and the speed. If we assume that they run one-third of the time, we would have for the time for the round trip of a four-story building, forty-five seconds. Practically the interval is a little less where the travel is more than four stories, sufficient to make it forty seconds as an average.

As an instance of the influence the number of offices on a floor and the number of stories have on the number of elevators needed in a building, we may note the case of one building of seven stories and 240 offices that has its tenants easily accommodated by two cars, while a building of twelve stories and 271 offices has four cars fully taxed all of the time, the character of the use being similar. As near as could be determined a car 5x5 feet gives good satisfaction, and such a car, at a speed of 450 feet per minute, will serve seventy-five offices well if they are placed on more than two and less than six stories, and if the service is such as to give more than this number of offices to a car or a greater travel, the number of cars should be increased. Finally, it may be said that for a 25x100 feet building two cars are needed for all services between four and fifteen stories, and for a 50x100 feet building there should be two cars up to eight stories, three up to thirteen, and four up to twenty, and it is probable that four cars will provide for any additional number of stories that it is practicable to build on this width.

For a 100x100 feet building, we should have four cars up to ten stories, five up to fourteen and six for all above that number.

It has already been said that the cars should be about 5x5 feet; this is for ordinary service. For a building in which there are more than twenty offices on a floor there should be added one square foot of area to the car for each additional office until the car reaches a size of 6x6 feet, beyond which it is not well to go, and then the number of cars should be increased.

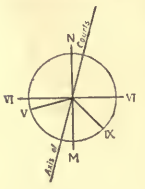
Other details of the elevators should be in part determined by the character of the building, the space at hand and the like, but in general they should be made so as to lift 2,500 lbs. live load at the full speed, should have the entire front readily removable, and should have the governing device in the corner away from the door, so that when the front is removed the rope or wheel is out of the way. The controlling device should be a wheel, lever or switch, the switch being much better, as it gives more perfect command over the motion of the car. The guides generally should be placed in the corners of the well. This economizes space, although it is not quite so good for the construction of the car. Where there is a reasonable doubt as to the actual number of cars required, it would be well to make ample provision for the probable maximum, and then only install the minimum number that it is thought will do for the service, putting in others later on if necessary. Stairs are not mentioned in this connection as they are never used save in an emergency.

(*b*) *Good Light.*—This is of the utmost importance and as is usual in such cases there is a radical disagreement at the very start as to the requirements. Some hold that only a north light is truly good while others aver that no building is well planned that is not so arranged that there is a little sun in each office during a part of the day, except perhaps in the lower stories. Now the writer is one of the latter, and, if it were essential that the point should be settled, would be ready to discuss it to any length and could perhaps convince a goodly number of those who were inclined to think so in the first place, but certainly would not convince many others.

Fortunately for our present purpose it is not of the slightest importance which

way the light comes from since while we shall speak of its coming into the rooms, and thus make a certain arrangement preferable, if the plan were reversed, it would still be desirable to keep the axis in the same direction so as to get more of the north light.

The first point then is to get the proper direction for the axes of both the building and the courts. In New York we generally have this already determined by the subdivision of the city into rectangular lots with the long lines making an angle of about 21½ degrees east of the meridian, but elsewhere and especially where it is possible to make a selection, it should be on a bearing of north 22½ degrees east, which agrees quite closely with the New York layout. This will be evident from an inspection of the figure, in which for purposes of ready comprehension the sun is supposed to rise at the point VI. representing six A. M. and to set at the opposite end of the diameter, then the usual hours of business will be as designated by the numbers IX. and V. and the line which bisects the space between them represents the axial line that divides the hours of sunlight equally, and it is this line that should be used for the axes of the building and of the courts. It will further be evident that if the courts be made square or nearly so they will be so proportioned as to throw the shadow of the south wall on the north wall at the highest point that it can reach and only the top of the court will ever get direct light, while if the court be made rectangular and with the long axis north and south, the light at noon day will penetrate to the very bottom during at least a part of the year, and will go the maximum distance at all times. If the court is open to the south every office that gives on it will get a glimpse of the sun every day that it is visible at all. The courts should be generally from 6 to 25 feet wide depending on the width of the lot and the size of the offices.



From this it would follow that the ideal location would be either on the northeast or the southwest corner of the street, according to preference for either north or south light, the elevators, stairs, etc., remaining in the same place and the plan being simply turned over. Refer to the figures 1–7 given in the discussion of the point (*e*) for suggestions as to court arrangements.*

The light must be let into the offices through windows, no matter where it comes from, and these must be made ample. Requirement (*f*) makes it desirable to use a unit for an office of about 9x15 feet, and to properly light this unit requires a window at least 4 feet wide and 6 feet high with the top not more than 1 foot below the ceiling. The particular point to watch is that where there are large arched openings the offices that come partly behind them shall have plenty of light, either by openings at the sides or by piercing the spandril walls, or in some other way, as the volume of light from the top of the window is of much greater lighting value than that coming in at the floor. Under no circumstances should that part of a window that is below a point 20 inches above the floor count as a useful part of the opening. This is a particularly hard condition to satisfy, it is admitted, but it is one that is unavoidable and must therefore be met in some way.

The light in a room is also made much more effective if there is a certain amount of clear wall space on each side of the window, broken, in fact, only by the furniture. The ceiling should be hard finished, as this reflects much light down to the desks. For the same reason the aim should be to have all of the rooms rectangular and without breaks, alcoves or other similar construction, as they all take from the light and interfere with the tenant's use of the office in his way.

(*c*) *Good service.*—Apart from the use of the building after hours, janitor

* It is the opinion of some of those who have made a study of the renting of office buildings that the future competition will be made on the question of light and air and that unless the adjoining property-owners agree to keep to the same court lines, so as to make all courts a minimum of 12 feet wide, it would be better to sacrifice the offices on one side of the hallway, so as to insure an excellent light regardless of what the neighbors may do. The writer inclines to the opposite view, believing that the reasons leading one owner to a certain course will be strong to control the others.

service, the necessity of securing elevator boys of some little intelligence and other similar matters that are entirely within the control of the owner, there are the toilet arrangements, heating, lighting and ventilating, to be considered.*

If the toilets should be placed on every floor for the accommodation of the tenants on that floor each toilet should have one water-closet for every five offices, one wash-basin supplied with hot and cold water for each two water-closets, but never less than one, and one urinal for each two closets. In addition, there should be either a small cesspool in the floor with a trap, bell trap and strainer and draw cocks placed on the supplies for the use of the "scrubs," or there should be a regular slop sink placed in a compartment similar to the water-closet compartment, supplied with both hot and cold water and with a strainer placed in the waste. If these fixtures are all grouped on a floor their number may be reduced one-half, but in all buildings 50 x 100 or more, there must be a wash-basin and urinal on each floor. In the floor where the toilets for women are there should be placed a double number of water-closets, and, if possible, sufficient room for a sofa and a connection for a small gas stove ; this room should connect through a lobby with the janitor's rooms. The fixtures should all drain into a main drainage system of wrought iron, screw-jointed pipe with shouldered fittings, such as are put in by all of the good plumbers in the city, the pipe being hung preferably to the beams at the middle story so as to minimize the effect of expansion and contraction. This will add about 5 per cent to the cost of the work, but is the only way the plumbing can be made safe in a large, high building. Each office must be provided with a wash-basin, which may have either cold water alone or both hot and cold, as may be deemed best for the particular case, although it will not be advisable generally to supply more than cold. Connected with this question is the kindred one of whether to filter the water supplied or not. If all of the water has to be pumped to a house tank, it will probably pay to provide for the introduction of a certain small amount of alum as a coagulant into the receiving tank and then pass the water for the house lines through a felt filter arranged so as to be washed down by the operation of a simple lever that works all of the necessary valves. This will add but a small amount to the cost of the plant in the beginning, and is an attraction to tenants If there is anywhere in the vicinity a refrigerating plant, it would probably pay to make an arrangement to have a certain small amount of brine circulated through a tank, in which would be placed a coil of pipe from which the water would be drawn as needed, giving cooled water during the summer. If the building were very large, it would probably pay to put in a small plant, operated by an electric motor. If the remainder of the plumbing is up to the requirements of the New York Health Department, it will be perfectly safe and needs no further comment.

Heating and ventilation should go together and form a serious problem since cost and methods of construction will not permit of a complete indirect heating plant, and it is also probably the case that it would not be satisfactory to the tenants, while the cost of operation would be very great. Fireplaces are not permissible since they will in almost every case prove to be an unmitigated nuisance, always coming in the wrong place, taking valuable room just where it is most needed and forming a serious item of cost when properly treated. They serve, however, to take some of the foul air from the offices and so do a little good to justify their existence. Probably the removal of the foul air can be suffic-

* Here again there is a division of opinion, one side, and it the practical, office-renting one, holding that the top floor should be devoted, except perhaps a small part, to the living rooms of the janitor, the men's and women's toilets, while the other, the architects, usually advising that the toilets be placed on each floor and the janitor given quarters elsewhere. The writer has figured on both ways and finds but little difference in the space lost. If the toilets are grouped at one place only one-half the number of fixtures are required; but the space so saved must be given to the janitor. Then there must be provided a basin and two or three urinals on each floor. Figures 1 to 7 show the floors without toilets, and the estimates of cost in the tables are based on there being toilets on each floor with the accommodations determined upon in this article.

iently well accomplished by putting in transoms over the hall doors and opening the halls to the outer air at some convenient point where there will be no back draft into the halls. If it is preferred, moderate size ventilating pipes could be run to each of the offices, being collected into a main stack running vertically through the building and the circulation assisted by means of a small fan run occasionally, simply to start the circulation. Exhaust fans have a way of taking their air along the lines of least resistance and that makes it undesirable to depend on them entirely.

To introduce the needed air and to warm it to the proper temperature it is desirable to use a direct radiator with a box base, connected with the outer air by means of a small galvanized iron pipe with a damper in it, so arranged as to open the base to the air in the room as it closes it to the outer air. Then in the morning when it is desired to warm up quickly the damper would be closed to the outer air and the air in the room would be warmed by the circulation which this radiator would set up. As soon as the air was of the proper temperature it would be maintained at this point by the opening of the damper so as to admit the fresh outer air, warming it as it enters. Such an arrangement is no novelty and has been found to be generally satisfactory.

It goes without saying that, whether there is a public supply available or not, the building will be lighted primarly by electricity. If the public supply is not satisfactory either in cost or quality, then a gas engine plant should be installed, taking gas from the municipal supply, burning it in a gas engine, and getting more light from it than could be done if the gas were burned in burners directly for illumination. There would be placed a single gas jet in each room for the scrub's use or for an emergency, but the lighting would be by electricity. Each room should have at least five outlets, one in the centre for the chandelier, with all of its lights controlled by a switch at the side of the entrance door, and four placed near the four corners of the room. It is the practice with certain architects to make these lights, that are for desk lights, brackets, but it is inevitable that they will prove to be in the way of at least 75 per cent of the tenants, besides which they interfere with condition (*f*). These outlets should be simply the junction box of the Interior Conduit and Insulation Company, with the rim flush with the plastering, and covered with a brass cover carrying a hard rubber bushing and small male screw. Inside of the box would be placed the fuses on a hard rubber base and the binding posts for the connection of the fixture wires. From the outlets so arranged would be carried the twin wires for the light, terminating either in a socket carrying a shade or in a more elaborate fixture or in a desk fixture, the wires being drawn over to the picture moulding and then down to the desk. If the wiring is done according to the rule of the New York Board of Underwriters, it will be of sufficient size to supply ample light. The central fixture should have four lights for each office unit and might have a Greenfield switch in it for use in the office, so as to make the reach to the fixture easy for short people.

Should lights be desired at any point intermediate between the ceiling outlets, a small brass tube could be arranged between the outlets and carried by them, on which the pendant could be traversed by hanging it to a ring.

(*d*) *Pleasing environment and good approaches* are both matters within the control of the owner, subject to the treatment of the artist, and are not pertinent to this article.

(*e*) *The maximum of rentable area consistent with true economy.*—This must be considered in two parts; first, as to the plan, and second, as to the way in which it shall be carried into execution.

First: *The Plan.*—There must be on each floor the elevator-well, the halls, the stairs and the toilets; each of these require a certain amount of space, and for economy of construction it is desirable that the various floors be made duplicates as far as possible, while for some of the features it is a necessity.

Having decided on the size of the elevator car according to principles already laid down, the well should be

made one foot larger in each dimension than the size of the car. It should be placed at or near the centre of the building, and, of course, must run all through plumb and true.

The halls depend on the size of the building to a certain extent, but for the usual case of the 25x100 or 50x100 feet building they must be made as small as possible. Then we would make the hall on the ground floor as direct as possible from the street to the elevators, and 8 feet wide, with a space in front of the elevators of the size of the well. For the upper floors, if the space be made 4 feet wide in front of the cars and the halls 3 feet 10 inches wide, it will be ample if the trim is not too projecting, the space in front of the cars being joined to the side halls either by a sweep or straight.

For the stairs it should be kept in mind that they are for use only occasionally, and are in no sense ornamental features that are indispensable, except occasionally when they are meant to lead up to grand offices on the first floor above the street. Generally the money that they cost could be spent to better advantage in the enrichment of the entrance hall. Leaving the question open as far as the special cases go it may be said that if through the balance of the building they are made 2 feet 6 inches wide that will be sufficient for all practical purposes. They should be placed at the end of the hall or at some other out-of-the-way place and be made as plain as possible.*

The toilets require for their accommodation space as follows: For each water-closet a space 2 feet 6 inches wide and 3 feet 10 inches deep, for each urinal 2 feet wide and 3 feet deep and for each wash-basin 2 feet 6 inches wide and 3 feet 6 inches deep, all as a minimum.

The toilets must be placed where they will either come on a light well or else be placed on an exterior wall and would, therefore, be placed in a corner or angle.

It will be found that there are often tenants that desire an entire floor, and to secure this the service should be placed where it will not interfere with the removal of all of the partitions.

The size of the offices must be so arranged that the man who wants a single office will get just sufficient while the man who wants more gets all that there can be given on a floor except a minimum space reserved in the least desirable location for the toilets and stairs. This subdivision forces one into a column treatment of the façade, so as to get sufficient light for all of the offices, and also indicates a spacing of the columns in the framing that is the most economical as a general rule.

Such an arrangement gives opportunity to make the masonry piers of sufficient width to satisfy the sense of proportion regardless of their height and introduces no greater difficulties into the solution of the problem than were there before, nor will the design of different office buildings possess any greater similarity if so laid out than they do now. In fact it would be well if the principles were so well understood that the owner could protect himself and the public from the *novel*, etc., solutions that one sees occasionally.

The economical depth of an office must also be taken into account in the planning for, after a certain point is reached, no more money can be obtained for an office no matter what its depth. While there is but little data on which to base an opinion, it is still probable that the limit is in the neighborhood of 16 feet deep in the clear, as beyond this the light is rather bad, and the space loses in value in consequence. This consideration limits the useful size of a lot since it will be readily seen that there is a point where the extra size can only be used for court space or in uselessly increasing the size of the offices.

Referring now to figures 1 to 7, we make practical application of these principles. They are intended primarily as suggestive of the plan, and would seem to be the logical outcome of the

* In their layout the need to use the stairs as a hatchway for the introduction of large or awkward articles of furniture should be kept in mind and the strings carried to the wall supporting the stairs, making the newels and rails low so that they shall be as little in the way as possible.

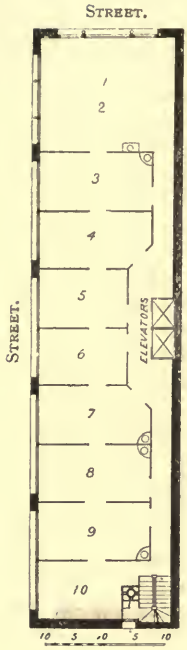


FIG. 1.—25 x 100 building on a corner. Office unit 9.9 x 19.0.

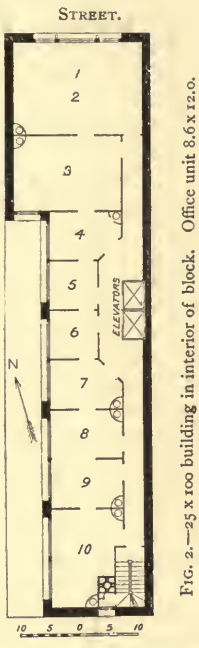


FIG. 2.—25 x 100 building in interior of block. Office unit 8.6 x 12.0.

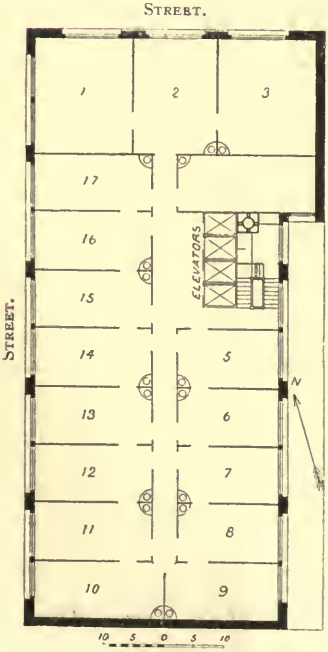


FIG. 3.—50 x 100 building on corner. Office unit 9.9 x 17.0.

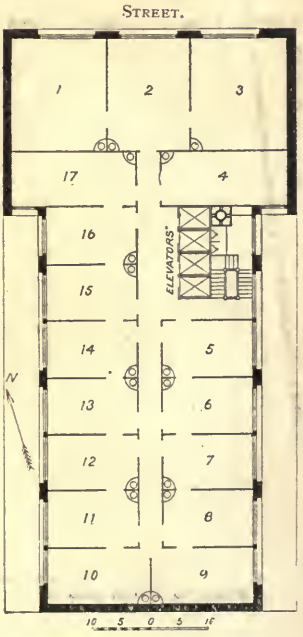


FIG. 4.—50 x 100 building in interior of block. Office unit 9.9 x 15.0.

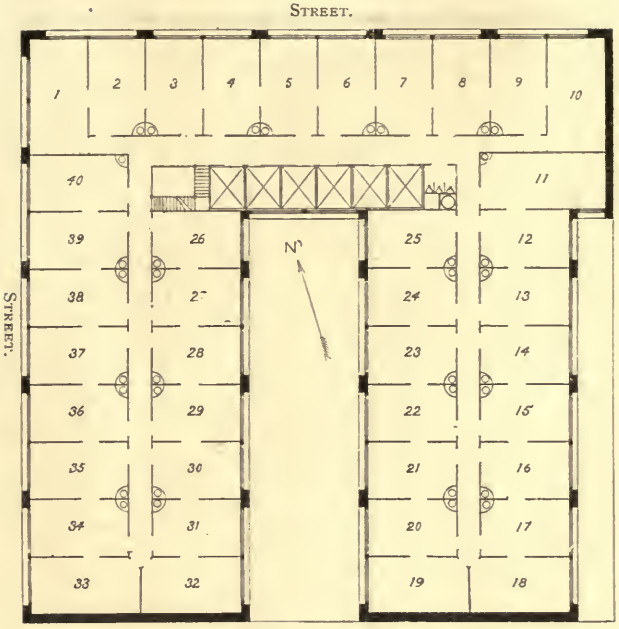


FIG. 5.—100 x 100 building on corner. Office unit 9.9 x 15.0.

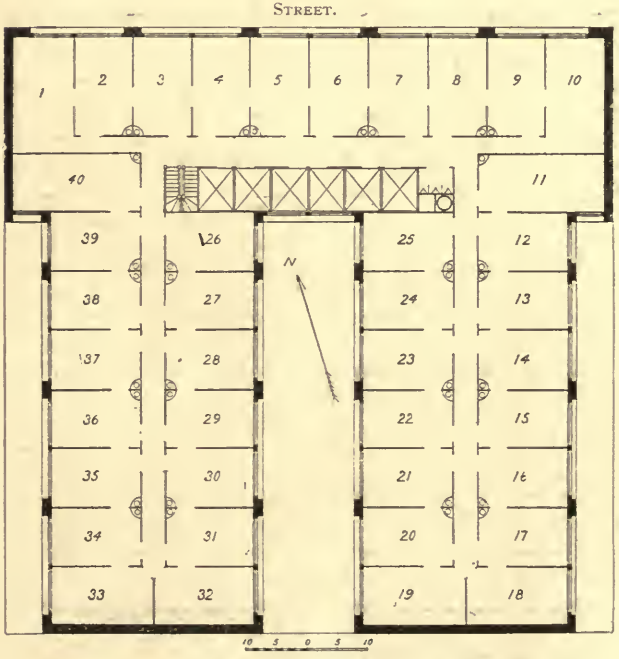


FIG. 6.—100 x 100 building in interior of block. Office unit 9.9 x 15.0.

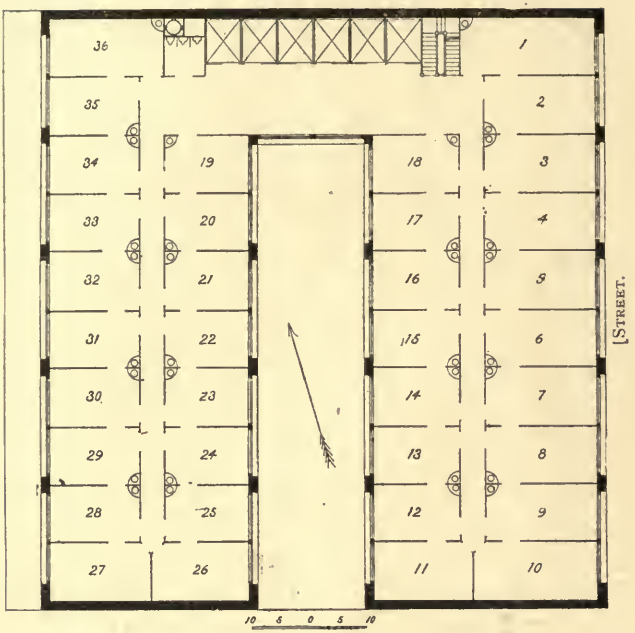


FIG. 7.—Alternative of Fig. 6. Office unit 9.9 x 15.0.

conditions assumed. In them the toilets needed, if there is to be accommodation on each floor, are left out, but if they are decided upon they can be readily arranged for. If they are to be placed on the top floor with the janitor's quarters they can be easily arranged for there, and with the janitor's quarters will occupy about the space they would occupy alone if scattered through the building.

No drawing is made for a 75x100 feet lot, as this size gives no advantage over the 50x100 feet size, except in giving ample light courts and permitting of a slight enlargement of the offices. If good light must be assured as suggested under heading (*b*), where speaking of the 50x100 feet lot, it would seem to be desirable to extend the frontage and widen the courts, as given in figures 3 and 4, so as to secure the additional light. These plans are for the average thickness of wall for a steel skeleton and would, of course, require a modification if they were made to conform to the requirements for masonry. This has not been done, as it will subsequently appear that the skeleton is the proper method to use.

Second: *The method of construction.*—To put it in the form that it presents itself to us would be to say, steel skeleton versus masonry. The elements that must decide, if we are to decide intelligently, are numerous and each must be given its proper weight.

We can build either all skeleton or all masonry; we can also, if we please, build a masonry wall carrying only itself, and then place columns behind it to carry the loads, but this does not seem to be the best construction since it wastes money, wastes space and will surely lead to some very ugly cracks that never can be closed. It may possess some advantages but they are not easily apparent. The better way would be to do all of either one thing or the other. Taking, then, for consideration the alternative, all masonry or all skeleton construction, we must consider that the masonry, if the walls are built of the thicknesses required by the New York laws, will take up more space than the steel walls, the amount being given in table I.,* for all walls from one

*The various figures in the tables have been largely read from the slide rule and will not, therefore, be accurate in the last place, but are sufficiently so for all practical purposes.

TABLE I.

DATA FOR COMPARISON OF BRICK AND STEEL SKELETON WALLS. BASED ON A LENGTH OF ONE FOOT.

Stories.	Height.	Areas.		Costs.		Excess of Cost.	Interest at 8 %.	Area Saved.	Rent to Pay Interest.
		Brick.	Steel.	Brick.	Steel.				
1	12.5	1.00	1.00	$4.00	$6.25	$2.25			
2	25.0	2.00	2.00	8.00	14.80	6.80			
3	37.5	3.00	3.00	12.00	25.70	13.70			
4	50.0	5.00	4.00	19.00	40.50	21.50	$1.72	1.00	$1.72
5	62.5	6.00	5.33	24.00	58.00	34.00	2.72	0.67	4.06
6	75.0	8.67	6.67	34.68	78.68	44.00	3.52	2.00	1.76
7	87.5	11.67	8.00	46.68	103.30	56.62	4.53	3.67	1.23
8	100.0	14.67	9.33	58.68	130.52	71.84	5.75	5.34	1.07
9	112.5	17.33	11.00	69.32	160.75	91.43	7.31	6.33	1.15
10	125.0	20.00	12.67	80.00	193.73	113.73	9.10	7.33	1.24
11	137.5	23.00	14.33	92.00	229.92	137.92	11.03	8.67	1.28
12	150.0	26.00	16.00	104.00	268.95	164.95	13.20	10.00	1.32
13	162.5	29.33	18.00	117.32	321.15	203.83	16.31	11.33	1.43
14	175.0	32.67	20.00	130.68	357.25	226.57	18.13	12.67	1.43
15	187.5	36.33	22.00	145.32	406.90	261.58	20.93	14.33	1.46
16	200.0	40.00	24.00	160.00	459.35	299.35	23.95	16.00	1.50
17	212.5	43.67	26.33	174.68	515.77	341.09	27.29	17.34	1.57
18	225.0	47.33	28.67	189.32	571.66	382.34	30.59	18.66	1.64
19	237.5	51.33	31.33	204.32	633.32	429.00	34.32	20.00	1.71
20	250.0	55.33	34.00	221.32	697.00	475.68	38.05	21.33	1.77

Thickness of walls from the New York Building Laws.

Areas given are for the total number of floors set opposite them. The areas given in columns 3 and 4 are the total areas occupied by the walls on all of the floors, in square feet.

TABLE II.

BUILDING ON CORNER, 25X100.

Stories.	Wall Areas.		Service.	Total Area.	Net Areas.		Cost Building.		Cost Lot.	
	Brick.	Steel.			Brick.	Steel.	Brick.	Steel.	Brick.	Steel.
1	250	250	470	2,500	1,780	1,780	$26,000	$26,550	$7,400	$6,850
2	500	500	940	5,000	3,560	3,560	37,370	39,050	29,330	27,650
3	750	750	1,410	7,500	5,340	5,340	48,800	52,200	51,250	47,800
4	1,250	1,000	1,880	10,000	6,870	7,120	58,900	64,000	70,100	69,500
5	1,500	1,330	2,350	12,500	8,650	8,820	68,900	77,400	93,100	88,100
6	2,170	1,665	2,820	15,000	10,010	10,515	78,800	89,800	108,700	107,200
7	2,950	2,000	3,290	17,500	11,260	12,210	91,700	105,850	118,400	122,950
8	3,660	2,300	3,760	20,000	12,580	13,940	101,800	119,800	134,200	142,200
9	4,330	2,750	4,230	22,500	13,940	15,520	113,000	135,700	149,000	155,300
10	5,000	3,160	4,700	25,000	15,300	17,140	123,950	152,150	162,050	168,850
11	5,750	3,590	5,170	27,500	16,580	18,740	134,900	169,200	175,100	181,800
12	6,500	4,000	5,640	30,000	17,860	20,360	147,300	188,500	187,700	193,500
13	7,250	4,500	6,110	32,500	19,140	21,890	157,264	208,264	200,736	201,736

TABLE III.

BUILDING ON INTERIOR OF BLOCK, 25X100.

Stories.	Wall Areas.		Service	Total Area.	Net Area.		Cost Building.		Cost Lot.	
	Brick.	Steel.			Brick.	Steel.	Brick.	Steel.	Brick.	Steel.
1	250	250	800	2,500	1,450	1,450	$22,700	$23,280	$4,500	$3,920
2	500	500	1,600	5,000	2,900	2,900	31,650	33,350	22,650	20,950
3	750	750	2,400	7,500	4,350	4,350	40,650	44,070	40,850	37,430
4	1,250	1,000	3,200	10,000	5,550	5,800	50,000	55,100	54,000	53,700
5	1,500	1,350	4,000	12,500	7,000	7,170	58,850	67,350	72,350	67,150
6	2,170	1,665	4,800	15,000	8,030	8,535	68,780	79,790	81,220	80,210
7	2,950	2.000	5,600	17,500	8,950	9,900	79,200	93,350	87,800	92,050
8	3,660	2,300	6,400	20,000	9,940	11,300	89,600	107,600	96,900	104,400
9	4,330	2,750	7,200	22,500	10,970	12,550	99,600	123,300	106.000	111,700
10	5,000	3,160	8,000	25,000	12,000	13,840	108,650	136,850	116,350	122,650
11	5,750	3,590	8,800	27,500	12,950	15,110	119,600	153,900	123,000	130,100
12	6,500	4,000	9,600	30,000	13,900	16,400	129,000	170,200	131,600	137,000
13	7,250	4,500	10,400	32,500	14,850	17,600	140,300	191,200	137,700	138,800

TABLE IV.

BUILDING ON CORNER, 50X100.

Stories.	Wall Areas.		Service.	Total Area.	Net Areas		Cost Building.		Cost Lot.	
	Brick.	Steel.			Brick.	Steel.	Brick.	Steel.	Brick.	Steel.
6	2,601	2,001	5,550	30,000	21,850	22,450	$131,100	$144,300	$276,900	$276,700
7	3,401	2,400	6,475	35,000	25,125	26,125	152,400	169,300	318,600	318,700
8	4,401	2,799	7,400	40,000	28,200	29,800	173,400	194,900	354,600	363,100
9	5,199	3,300	8,325	45,000	31,775	33,375	199,000	216,500	396,000	408,500
10	6,000	3,801	9,250	50,000	34,750	36,950	220,200	253,900	430,800	438,100
11	6,900	4,299	10,200	55,000	37,900	40,500	241,550	292,850	469,450	465,150
12	7,800	4,800	11,150	60,000	41,050	44,050	265.250	314,750	504,750	510,250
13	8,799	5,400	12,100	65,000	44,100	47,500	287,550	348,550	537,450	541,450
14	9,801	6,000	13,050	70,000	47,150	50,950	314,900	383,400	567,100	571,600
15	11,899	6,600	14,000	75,000	49,100	54,400	338,650	416,950	581,350	603,050
16	12,000	7,200	15,000	80,000	53,000	57,800	364,600	453,600	628,400	630,400
17	13,101	7,899	16,000	85,000	55,900	61,100	388,500	490,700	659,500	652,300
18	14,199	8,601	17,000	90,000	58,800	64,400	412,700	527,550	687,300	677,450
19	15,399	9,399	18,000	95,000	61,600	67,600	437,650	566,450	714,350	703,550
20	16,599	10,200	19,000	100,000	64,400	70,800	463,350	606,350	743,650	721,650

TABLE V.

BUILDING ON INTERIOR OF BLOCK, 50X100.

Stories.	Wall Areas.		Service.	Total Area	Net Area.		Cost Building.		Cost Lot.	
	Brick.	Steel.			Brick.	Steel.	Brick.	Steel.	Brick.	Steel.
6	2,601	2,001	8,400	30,000	19,000	19,600	$119,200	$132,400	$236,800	$234,600
7	3,401	2,400	7,800	35,000	21,800	22,800	139,450	156,350	268,550	270,650
8	4,401	2,799	11,200	40,000	24,400	26,000	154,430	175,900	262,570	311,100
9	5,199	3,300	12,600	45,000	27,200	29,100	181,850	209,350	328,150	335,650
10	6,000	3,801	14,000	50,000	30,000	32,200	203,450	237,150	359,550	366,850
11	6,900	4,299	15,430	55,000	32,670	35,270	223,000	264,300	390,010	397,700
12	7,800	4,800	16,860	60,000	35,340	38,340	245,800	295,300	416,200	422,700
13	8,799	5,400	18,290	65,000	37,910	41,310	266,500	327,500	443,500	447,500
14	9,801	6,000	19,720	70,000	40,480	44,280	293,200	361,700	466,800	468,300
15	11,899	6,600	21,150	75,000	41,950	47,250	314,300	392,600	470,700	494,400
16	12,000	7,200	22,650	80,000	45,350	51,050	338,450	427,450	511,550	328,550
17	13,101	7,899	24,150	85,000	47,750	52,950	361,650	463,850	535,350	536,150
18	14,199	8,601	25,650	90,000	50,150	55,750	384,600	499,400	555,400	545,600
19	15,399	9,399	27,150	95,000	52,450	58,450	408,100	538,900	573,900	558,100
20	16,599	10,200	28,650	100,000	54,750	61,150	431,650	574,650	593,350	567,350

TABLE VI.

BUILDING ON CORNER, 100X100.

Stories.	Wall Areas.		Service	Total Areas.	Net Area.		Cost Building.		Cost Lot.	
	Brick.	Steel.			Brick.	Steel.	Brick.	Steel.	Brick.	Steel.
6	4,670	3,600	17,700	60,000	37,630	39,700	$208,450	$232,250	$497,550	$511,750
7	6,300	4,320	20,650	70,000	43,050	45,080	242,550	273,150	567,450	571,850
8	7,900	5,050	23,600	80,000	48,500	51,350	276,950	315,750	633,050	644,250
9	9,350	5,940	26,550	90,000	54,100	57,510	311,750	361,250	700,250	708,750
10	10,800	6,840	29,500	100,000	59,700	63,660	346,300	407,300	771,700	783,700
11	12,400	7,700	32,450	110,000	65,150	69,850	389,200	463,700	831,800	844,300
12	14,100	8,640	35,400	120,000	70,500	75,960	426,800	515,900	863,200	904,100
13	15,800	9,720	38,350	130,000	75,850	81,930	462,350	572,350	957,650	959,650
14	17,670	10,800	41,300	140,000	81,030	87,900	500,650	621,750	1,019,350	1,026,250
15	19,600	11,860	44,250	150,000	86,150	93,890	546,400	687,400	1,068,600	1,070,600
16	21,600	12,950	47,200	160,000	91,200	99,850	586,600	746,750	1,123,400	1,123,250
17	23,600	14,150	50,150	170,000	96,250	105,700	626,800	811,000	1,173,200	1,169,000
18	25,500	15,500	53,100	180,000	101,400	111,400	668,200	874,200	1,239,800	1,215,800
19	27,700	16,900	56,050	190,000	106,250	117,050	709,400	941,400	1,280,600	1,248,600
20	29,800	18,350	59,000	200,000	111,200	122,650	753,900	1,009,900	1,326,100	1,290,100

TABLE VII.

BUILDING IN INTERIOR OF BLOCK ALTERNATIVE FIG. 6.

Stories.	Wall Areas.		Service	Total Area.	Net Area.		Cost Building.		Cost Lot.	
	Brick.	Steel.			Brick.	Steel.	Brick.	Steel.	Brick.	Steel.
6	4,650	3,600	21,000	60,000	34,350	35,400	189,950	215,000	454,050	448,000
7	6,300	4,300	24,500	70,000	39,200	41,200	219,000	250,000	516,000	523,000
8	7 900	5,050	28,000	80,000	44,100	46,950	251,000	291,000	577,000	589,000
9	9,350	5,940	31,500	90,000	49,150	52,560	286,000	335,000	634,000	652,000
10	10.800	6,840	35,000	100,000	54,200	58,160	319,000	384,000	696,000	706,000
11	12,400	7,700	38,500	110,000	59,100	63,800	353,500	433,000	756,500	765,000
12	14,100	8,640	42,000	120,000	63,900	69,360	390,000	484,000	808,000	816,000
13	15,800	9,720	45,500	130,000	68,700	74,780	421 900	538,000	869,000	867,000
14	17,670	10,800	49,000	140,000	73,330	80,200	457,000	587,000	915,000	923,000
15	19,600	11,800	52,500	150,000	77,900	85,700	497,000	648,000	964,000	962,000
16	21,600	12,950	56,000	160,000	82,400	91,050	536,000	708,000	1,009,000	1,000,000
17	23,600	14,150	59,500	170,000	86,900	96,350	574,000	771,000	1,056,000	1,039,000
18	25,500	15,500	63,000	180,000	91,500	101,500	611,000	833,000	1,109,000	1,067,000
19	27,700	16,900	66,500	190,000	95,800	106,600	648,000	895,000	1,152,000	1,105,000
20	29,800	18,350	70,000	200,000	100,200	111,650	690,000	964,000	1,190,000	1,126,000

TABLE VIII.

BUILDING IN INTERIOR OF BLOCK ALTERNATIVE FIG. 7.

Stories.	Wall Areas.		Service	Total Area.	Net Area.		Cost Building.		Cost Lot.	
	Brick.	Steel.			Brick.	Steel.	Brick.	Steel.	Brick.	Steel.
6	5,000	3,850	23,100	60,000	31,900	33,050	$189,950	$215,450	$407,050	$404,550
7	6,750	4,650	26,950	70,000	36,300	38,400	219,200	252,000	460,800	468,000
8	8,550	5,400	30,800	80,000	40,650	43,800	251,500	293,100	509,500	526,900
9	10,100	6,350	34,650	90,000	45,250	49,000	283,600	336,600	565,400	581,400
10	11,600	7,350	38,500	100,000	49,900	54,150	319,800	385,800	616,200	625,200
11	13,350	8,300	42,350	110,000	54,300	59,650	354,350	434,350	663,650	683,650
12	15,100	9,250	46,200	120,000	58,700	64,550	390,100	486,100	709,900	721,900
13	17,000	10,450	50,050	130,000	62,950	69,500	421,700	539,900	756,300	762,100
14	19,000	11,600	53,900	140,000	67,100	74,500	457,000	588,000	800,000	807,000
15	21,000	12,750	57,750	150,000	71,250	79,500	497,550	649,150	827,450	838,850
16	23,200	13,900	61,600	160,000	75,200	84,500	536,650	710,650	873,350	871,350
17	25,400	15,250	65,450	170,000	79,150	89,300	575,300	773,300	906,700	897,700
18	27,400	16,600	69,300	180,000	83,300	94,100	612,700	834,700	947,300	927,300
19	29,700	18,200	73,150	190,000	87,150	98,650	649,750	897,750	982,250	952,250
20	32,000	19,700	77,000	200,000	91,000	103,300	690,900	965,900	1,014,100	972,100

TABLE IX.

PRICES PER SQUARE FOOT OF LOT CORRESPONDING TO PRICES GIVEN IN COLUMNS 10 AND 11, TABLES II. TO VIII.

STORIES.	25.0 x 100.0 Feet.				50.0 x 100.0 Feet.				100.0 x 100.0 Feet.					
	Corner. Fig. 1.		Interior. Fig. 2.		Corner. Fig. 3.		Interior. Fig. 4.		Corner. Fig. 5.		Interior. Fig. 6.		Interior. Fig. 7.	
	Brick.	Steel.	Brick.	Steel.	Brick.	Steel.	Brick.	Steel.	Brick.	Steel.	Brick.	Steel.	Brick.	Steel.
1	$2 96	$2 74	$1 80	$1 57										
2	11 70	11 07	9 07	8 38										
3	20 48	19 11	16 32	15 96										
4	28 15	27 80	21 60	21 50										
5	37 28	35 12	28 95	26 83										
6	43 50	42 80	32 50	32 18	$55 40	$55 34	$47 36	$46 92	$49 75	$51 17	$45 40	$44 80	$40 71	$40 46
7	47 40	49 20	35 10	36 85	63 72	63 74	53 11	54 13	56 74	57 18	51 60	52 30	46 08	46 80
8	53 80	57 00	38 70	41 80	72 92	72 62	58 51	62 22	63 31	64 42	57 70	58 90	50 95	52 69
9	59 60	62 20	42 40	44 60	79 20	81 70	65 63	67 13	70 02	70 88	63 40	65 20	56 54	58 14
10	64 80	67 55	46 60	49 10	86 16	87 62	71 91	73 37	77 17	78 37	69 60	70 60	61 62	62 52
11	70 15	72 75	49 30	52 10	93 89	93 03	78 00	79 54	83 18	84 43	75 65	76 50	66 36	68 36
12	75 20	77 40	52 60	54 80	100 95	102 05	83 24	84 54	89 32	90 41	80 80	81 60	70 99	72 19
13	83 00	87 00	55 20	55 60	107 49	108 29	88 70	89 50	95 76	95 96	86 90	86 70	75 63	76 21
14					113 42	114 32	93 36	93 66	101 93	102 63	91 50	92 30	80 00	80 70
15					116 27	120 60	94 14	98 88	106 86	107 06	96 40	96 20	82 74	83 88
16					125 68	126 08	102 31	105 71	112 34	112 32	100 90	100 00	87 33	87 13
17					131 90	130 46	107 07	107 23	117 32	116 90	105 60	103 90	90 67	89 77
18					137 66	135 55	111 08	109 12	123 98	121 58	110 90	106 70	94 73	92 73
19					142 87	140 71	114 78	111 62	128 06	124 86	115 20	110 50	98 22	95 22
20					148 73	144 33	118 67	113 47	132 61	129 01	119 00	112 60	101 41	97 21

EXPLANATION OF TABLES.

As an example of the use of the tables I. to IX., we will suppose the case of a lot 90x100 placed on a corner; then to determine the available floor space for any given number of stories, we would refer to columns 3 and 4 of table I.

If we were thinking of a building ten stories high with brick masonry walls, we would multiply the perimeter of the building by 20, the number of square feet occupied in a ten-story building by a wall 1 foot long, and this would give us the total area occupied in the ten stories of the building, by the walls.

Similarly, if we multiply by 12.67, we would have the total area occupied by a steel skeleton building.

Next, suppose that we desire to know which of these two buildings would be the least expensive to erect, columns 5 and 6 give the respective costs per lineal foot of wall of a brick building or a steel skeleton building.

Column 7 gives the excess of cost, one over the other—this amounts to $113.73.

Now refer to column 9. It will be seen that the skeleton method saves 7.33 square feet over the masonry method.

If then we can rent this 7.33 square feet at $1.24 per square foot, which is taken from column 10, we will pay interest at 8 per cent on the additional cost of the steel skeleton wall; and if our rents are $1.25 per square foot, or more, it will be better economy to build the steel skeleton than to build the masonry wall.

Column 10 of table I. also shows that an eight-story building with a steel skeleton frame is the most economical considered only in the light of what it costs to gain the additional floor space; if we can rent that floor space for $1.07 it will pay interest on the additional cost.

Continuing the example of the 90x100 lot, if it should be desired to determine what could be done with it, refer to table VI.

The areas occupied by the wall given in columns 1 and 2 will be almost the same.

If an exact figure is desired, it can be obtained by the use of column 3 and 4 of table I.

The area occupied by the service will be precisely the same, except that the end of the hall will be cut off.

The net area will be reduced by 4 office units or 600 square feet per story. Then we would subtract these areas from the net areas given in column 6 or 7 for the actual net area of the building, multiplying by the rental per square foot determined on as a proper amount, would give the gross return per annum from the building. Capitalizing this at 8 per cent would give the amount of the total investment which is possible under the circumstances. This total investment includes the cost of the building as given in columns 8 and 9, and must further include interest on the investment for one year of amounts paid for architects and other commissions, purchasing of leases, tearing down of old buildings, and such other matters not properly included in the cost of a building.

These values are given in columns 10 and 11 for the different regular size lots. This limitation usually amounts to in the neighborhood of 10 per cent on the total investment, and should be very carefully observed.

Table IX is used as follows: Suppose that a man should offer a lot 50x100 for $300,000 on the interior of a block. Referring to table IX, columns 8 and 9, it will be seen that the building must be eight stories or more in height, since the allowable price per square foot does not reach $60.00 per square foot, which is the price of the lot per square foot based on $300,000, until eight stories have been reached, for a steel skeleton building.

Similarly, if the offer was for a lot of 50x100 at $1,000,000 it would be necessary to increase the rental price per square foot up to $2.00, to put the building on the corner, and build in steel skeleton, in order to be able to pay 8 per cent, inasmuch as the highest price that can be paid per square foot for a lot 50x100 on a corner is $148.73, when the rents are $1.50 per square foot, and the owner is satisfied with a gross 8 per cent return.

to twenty stories in height. Then, if the building is placed on a very narrow lot we must have some bracing, and the masonry walls do not readily lend themselves to this. No doubt it could be done, but it is probable that it would be far from a satisfactory piece of work and would probably lead to serious trouble in the future. Finally, we have the actual cost of the two methods when we place the interest of the added cost of the skeleton method against the lost space of the masonry method. This has been carried out to a legitimate conclusion for the several sizes of buildings and for the various heights in Tables II. to VIII., in which are given the areas occupied by the walls, the halls, elevators, toilets and service generally, under the heading of service: The total area obtained by multiplying the area of lot by the number of stories, the net area, the cost of the building and the maximum cost of the lot for both brick and steel buildings of various sizes of lot and varying heights.

In table IX. the lot costs have all been reduced to a price per square foot for purposes of comparison.

This maximum lot cost is obtained by multiplying the net rentable area by $1.50—assumed to be a fair average rentable value for the space, giving the gross income. This was capitalized at 8 per cent on the assumption that 3 per cent would easily cover all expenses for service, maintainance, etc., leaving 5 per cent as the net income. From the capital account so obtained the cost of the building was deducted, leaving the balance as the maximum amount that can be spent for the lot, plus interest cost for one year, fees, buying leases, etc. Of course, when the lot cost is actually less, there will be a corresponding greater profit.

Table I. shows under what conditions of rental value it is profitable to build the skeleton, viz., between six and seventeen stories when the rents are $1.50 per square foot, as assumed, and between four and twenty stories if they average $1.77.

If the front and rear walls are not too much pierced it might be safe to build with such bracing as could be had in masonry, but it would not be positively so.

Should the rentable value be greater or less than that shown, a new value for the lots can be found by multiplying the net area for the number of stories given, dividing the result by 0.08 and subtracting from the amount so obtained the cost of the building.

The costs as given are the result of a careful analysis of the costs of the buildings made in detail for each building and are based on New York prices; they include everything needed to fit the building for occupation, includiug fixtures, mechanical plans, etc., complete; they will be found to be close enough to require care to reach them, and do a thoroughly first-class piece of work in New York, while for other cities in the East they will be found to be ample.

It must be kept in mind that to accomplish these results, the space devoted to service must be laid out according to the principles already given, that the construction should follow the limitations given under heading (*g*), and that if there are to be spacious halls, monumental stairways, etc., there will also be a grand increase in cost and decrease in space.

(*f*) *Ease of re-arrangement.* — This is one of the items of cost that rarely enters into the preliminary estimates and is often of serious proportions. If the offices are laid out as advised much of this trouble will be avoided and if the partitions are made with corrugated iron lath, plastered on both sides with rock plaster and stiffened by being secured to small I beams, they can be shifted around at will with a minimum of cost. All of the other constructions will remain undisturbed and ready for any desired number of changes.

(*g*) *Minimum of cost consistent with economy.*—It would be probably well to again call attention to the tables II. to VIII. and to their lesson, that there are certain lots that, taken alone, cannot probably be made to pay interest on the cost of any building and the value of the lot no matter what the building be. This would not be so were we free to go to any height with the building, but there is a limit beyond which it is

not safe to go, and it it seems to be the proper place to speak of it here. Every tall building is at times subjected to wind pressures, tending to blow it down. We may say that this is a remote evil, but that it is a real one is too evident to be denied. The wind acts against the building in a horizontal direction, so that the building may be considered as being in the same condition as a beam fixed at one end, with the other end free and uniformly loaded. If this were the case actually with a beam, we should make the depth of the beam such that it would deflect less than the amount necessary to crack plaster. If the beam were supported at both ends this depth would be one-twentieth of the span, and being free, the effect of the load would be increased four times. Finally, we know that the length under these two conditions to secure the same deflection must bear the relation one to the other of 0.57 to 1.00. If then we have an office building 25 feet wide and should make the depth one-twentieth of the span, the building would be 500 feet high, and reducing this in the ratio above given makes the height 285 feet. If we had this height and the wall were pressed against to the predetermined amount we should have a deflection of 8 to 9 inches, which would throw the centre of gravity of the wall beyond the outer edge of the wall, if the building were eight stories high, and would bring it dangerously close, no matter what the number of stories. Keeping this condition in mind, it is probable that the maximum limit beyond which the deflection would be unpleasant, would be from 2½ to 3 inches, and this would give the height as from 71 to 95 feet, this according fairly well with the current practice. If we work on the assumption that the building is analagous to a beam with one end fixed and the other end free, and make its length one-fourth as great as we would if it were supported at both ends, we should have the depth to the length about as 1 to 5, or the height would be made 125 feet. This slightly exceeds the upper limit, as above found, and if the buildings were free standing, there is but little doubt that between four and five times the width would be the safe limit to carry the height, where proper regard was had to the wind bracing.

This then gives us limits within which we can make our own selection, depending on the circumstances of the character of the adjoining buildings, character of the soil and the other conditions of the environment. If the adjoining structure was to be some old small building, certain to be replaced in the course of a few years, it might be permissible to go one or two stories higher and watch the bracing when the intermediate building was torn down to see that it was of sufficient stiffness to resist the wind thrust, while if it were similar in character to the new one and equally well braced it would be probably safe to go to the maximum limit given.

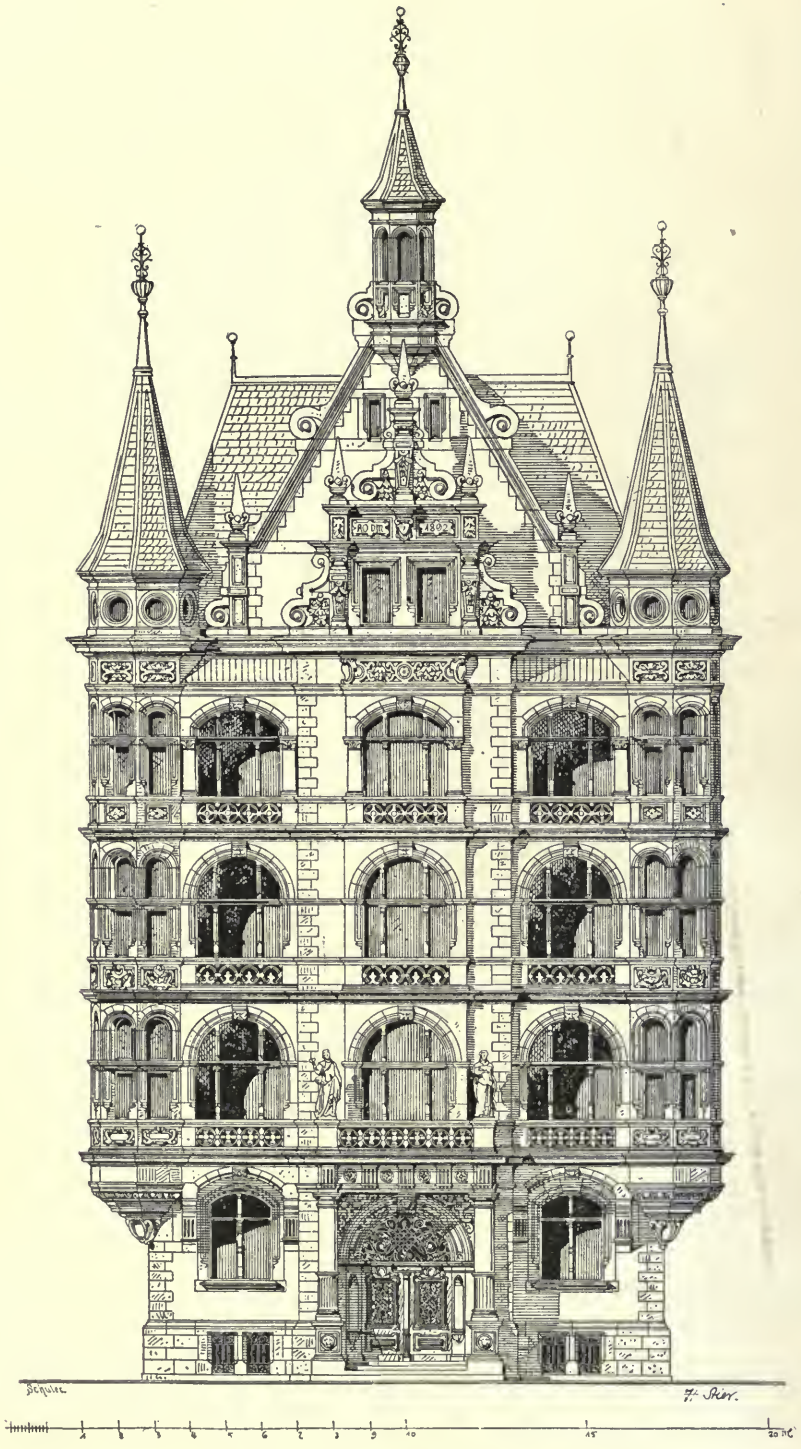
In this connection the limit in the methods of construction imposed by the bracing must be observed even when it increases the cost of the building by the use of the steel type when the height goes beyond the economical limit for this construction.

It will then be apparent that when the space rents for $1.50 per square foot, a masonry building pays up to about six stories, and beyond that it is necessary to build in steel. Since it is always desired to build to make the maximum possible return, we can treat the building as of a skeleton type, and enumerate the proper materials to use to meet the final conditions. It should be said that the estimates heretofore given are based on these materials, and the deductions therefrom will be varied slightly if the material change. It should also be said that only a first-class piece of work is contemplated, and not such as could be put up by a speculator in order to fill the building with tenants and then sell out to some easily gulled outsider.

In the choice of material, while there is, in some cases opportunity for a choice yet it will be found to be much more restricted than is generally supposed, and there are certain points in which there is none. It will not be attempted to give reasons but simply to indicate what experience and good practice have shown to be necessary.



Chicago, Ill. ASHLAND BUILDING. Burnham & Root, Architects.



RESIDENCE IN HANOVER. Prof. H. Stier Architect.



West Madison street, Chicago, Ill. A. J. STONE BUILDING. Alfred Smith, Architect.

The frame should be of mild steel, columns, girders, beams, etc., using the usual commercial shapes. The various parts should be rivetted together and the column connections so made as to maintain the full strength of the column.

The walls should be made with buff brick and terra cotta fronts and common brick backing for the facades, with the stories forming the basement of stone if desired, although this requires a judicious selection of the stone. The rear walls should be made with common brick and the courts either lined with enamel brick and with the beds and builds made flat, which would be the case wherever the courts are internal ones, or else painted three coats of paint finishing with one coat of enamel paint. The facing brick, where of a different size from the backing, should have every brick anchored with a Morse wall tie as often as the courses fall even. The inner faces of the walls that are exposed to the weather should be furred, using the usual two-inch furring blocks, the usual hollow bricks of Haverstraw size having proved to be a delusion so far as excluding moisture goes.

The fireproofing may be either of the hollow flat arches familiar to all, or of the new Manhattan type, either having proved to be good. The blocks, if used, should be so used as to fill up nearly the entire space between the flanges of the beams so as to require the minimum of filling, and the pipes and wires run in shallow channels run in the under flooring. The columns should be fire-proofed either by the use of slabs of fire clay, each slab securely wired to the others in the course, or else the column should be outlined with small L's and wire lath stretched over and plastered thoroughly, the writer's preference being for the wire lath and plaster. Every portion of the frame should be so treated, including the columns that are so laid out as to aid in the wind bracing and especially covering all columns that are inclosed in stone. If the framing is carefully laid out the beams will so come that it will be practicable to show them, using either high skew backs or the Manhattan arches without the hung ceiling below, thus effecting a small economy in cost.

The flooring in the halls should be either a marble mosaic or else a granolithic laid with a marble border, there being a small difference in favor of the granolithic. The toilets should be similarly treated. In the offices the flooring should be of Georgia yellow pine left untreated, but of course mill-dressed and carefully laid.

The plastering should be a rock plaster, hard finish, with the plaster carried into all jambs and reveals, with the corners rounded off, and a small cove at the ceiling, say of 6-inch radius. The partitions should be made of a rock plaster, put on corrugated iron lathing supported at intervals of about 3 feet by means of small channels or I's secured to the floor arches above and below. These partitions are but 2 inches thick, can be easily removed, and should be somewhat cheaper than the ordinary 4-inch blocks.

The trim should be of white oak, filled, hard oiled and rubbed to an eggshell finish, the base being made about 1¼x8 inches and the architraves about 4 inches wide over all, with a backing and back mold carried down to the floor, affording something for the base to stop against and mitreing around all openings. The window trim would be similar in character, with the inner moulding carried around across the top of the base and under the stool cap, so as to form a small panel under the sill. Chair rails and picture mouldings are matters of choice, and the former is seldom of any great use.

The halls should have either a Keene's cement or Mycenian marble wainscot, with marble base and cement cap, or the rock plaster can be run for a cap and a marble base put in, and then the space between painted with an enamel paint.

The toilets should have the water-closet partitions made of oak carried about 10 inches above the floor on brass legs, the urinal stall should be made of marble and the urinals either the long-lipped urinal with the "Parsons" flushing tanks for each stack, or else Mott's "Shanks" patent with individual tank. The water-closets should be



PRUDENTIAL LIFE INSURANCE COMPANY'S BUILDING.

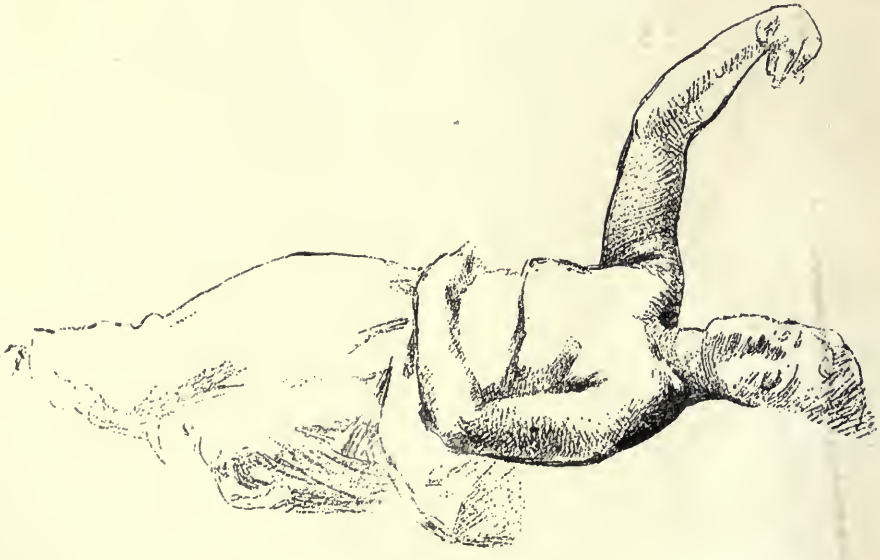
Newark, N. J. George B. Post, Architect.

either a washout closet or else a pedestal hopper with the seat simply a wooden rim carried on brass brackets, and a copper-lined wood cistern. The wash-basins should be oval with the patent overflow and half S traps close under the fixture with the supply pipes placed close under the slab and with shut-off cocks for each one.

Miscellaneous.—The roofing should be the New patent, the glazing of polished plate glass; the painting should be of the most thorough order, using for the first coats of all metal work a paint made by mixing 18 lbs. of red lead with 5 lbs. of raw linseed oil and applying while freshly mixed, the remaining painting being of first-class lead and oil paints in four coats. Leaders and flashing all of copper, skylights of galvanized iron, and the balance of the work to correspond.

It is of course impracticable in a single article to cover all of the ground, giving reasons for many of the statements made and going into the detail that would be desirable for a complete treatise on the subject. Those who desire to pursue it further will find the general principles of the constructive part fully treated in the writer's book, "Office Help for Architects," now appearing in the *American Architect*, and the details will be fully treated in a book the writer now has in preparation on this subject.

George Hill.





CHICAGO ATHLETIC ASSOCIATION BUILDING.

Michigan avenue, Chicago, Ill. H. Ives Cobb, Architect.

ARCHITECTURAL ABERRATIONS.*

No. 7.—THE FAGIN BUILDING, ST. LOUIS.



AN eminent sculptor has been heard, home returning from Philadelphia, soothly to swear that it was something to have seen the worst in any kind, and that in Philadelphia he had seen the exactly worst piece of architecture in existence, in the *Record* building. It may be worth while to reverse Matthew Arnold's maxim and in the interest of culture to know the worst that has been done in the world, but one is always prone to puff himself up with the belief that he knows it when in fact he does not. We have already dealt in this series with the *Record* building and we shall not be suspected of entertaining any mawkish tenderness for that structure. But if the sculptor we have quoted had been confronted, just after delivering his judgment with the Fagin building of St. Louis, how would he have deplored his temerity!

> "Ah! where shall we go then for pastime,
> If the worst that can be has been done."

It may be apprehended that there will be a good deal of fun hereafter in Philadelphian architecture, even though the *Record* building "has been done," and perhaps some future architect of St. Louis may exceed the absurdity of the Fagin building. We cannot say that it is the worst that can be, but can anybody indicate anything quite so bad that has been? If so, he will confer a favor by sending a photograph of the object in question to join the collection of yet unpublished aberrations.

In such a structure as this (if there be on the whole planet another such) the psychological problem early arises: What can have been in the man's mind when he did it? What did he think he thought? An architect in Baltimore, upon whose work we had occasion to comment not long ago, delivered himself into our hand, though we refrained from administering further justice upon him, with the defense that it was necessary to make a commercial building conspicuous and to arrest the attention of the passer. This intention to "collar the eye" is visible in all the aberrations of our architecture. Whether it proceed from personal vanity on the part of the designer or from deference to the requirements of his clients, it is essentially a vulgar motive and cannot have other than a vulgar result. When complicated with ignorance sufficiently dense, or with unsoundness of mind, it produces architectural aberrations. It is plain enough that the designer of the Fagin

* We are making a collection of "Aberrations," and shall present one to our readers in each number of THE ARCHITECTURAL RECORD.



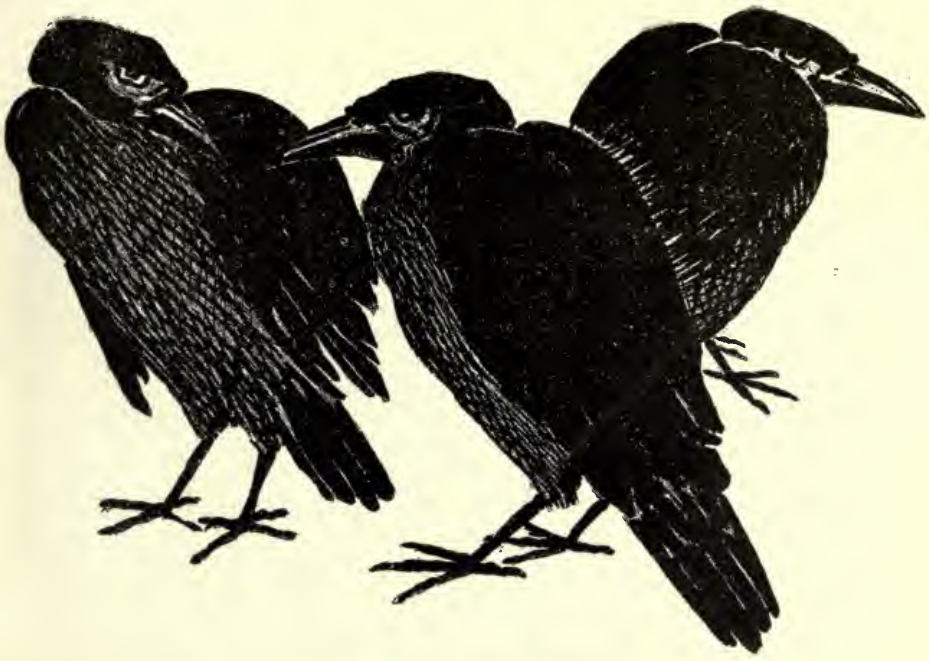
THE FAGIN BUILDING, ST. LOUIS, MO.

building meant to make people look at his work, and so far he has been successful. Nobody but a blind man who should pass it could possibly escape it. But there is novelty in the method by which he has sought his result. Apparently his notion was, after sacrificing to practicality by making a front that is nothing but a sash-frame, to produce an architectural work by making the sash-front look massive. The thing is impossible, of course. Although by skillful treatment an architect may mitigate his misfortunes and make the utmost of inadequate dimensions, a massive sash-frame is beyond his powers, and a cyclopean sash-frame, such as the architect of the Fagin building has attempted, is beyond his dreams.

An architect, if for his sins he had to design a front with such a proportion of voids to solids, would have made his basement as solid as possible, have tied his front together with emphatic horizontal lines, and have tried for an expression of lightness and grace, an expression of mass and solidity being out of the question. The designer of the Fagin building, instead of dissembling the unfortunate weakness and tenuity of his supports, has called attention to it by every means in his power. He has projected them from the plane of the front, he has not crossed them with a single horizontal band from the sidewalk to the roof, he has diminished them into shafts at the bottom and left them as boulders above, and he has treated them with the utmost rudeness, as if rudeness and vigor were the same thing, and slovenliness, profanity and profuse expectoration signs of force of character. The comparison is not inapt, for protruding rough stones and leaving capitals and bases off from columns is analogous to going about in one's shirt sleeves and with unblackened boots. It is a disregard of elementary decencies, and such a disregard characterizes the whole design of the Fagin building so that the predominant expression is not so much of crudity or rudeness or mere ignorance, as of impudent rowdyism.

It does not attain its purpose, for it cannot possibly frighten anybody. In fact, all the efforts to make it look vigorous betray and enhance its pitiable weakness. Six completely independent piers, running through from top to bottom, divide the front into five vertical slices, none borrowing any strength from any other, and all consequently seeming in imminent danger of toppling down. To look at it one would say that a healthy child would have no trouble in kicking it over. Our swashbuckler, so far from being formidable, is "staggering drunk." The apparent instability of equilibrium that would be in any case produced by the erection of the front in vertical slices and without horizontal lines, is aggravated by the fact that the stilts that support it are grievously overloaded at the top. Not only does this top over-weight the substructure, but the things of which it is made up are even more outrageous than the detail of the sub-structure, which one would say was impossible if he saw only the sub-structure. The huge cornice of the central slice, the things that support it, the thing it supports, the imitation in the side gables of logs of wood in masonry, the difference between these gables—has the heart of man ever conceived such atrocities elsewhere or before?

Up to date, and so far as we know, the Fagin building is the most discreditable piece of architecture in the United States. In spite of our caution about the superlative degree we are compelled to employ it. This has all the vices and crudities that we call "western," though in fact the geography has nothing to do with them. As we have before remarked, the commercial architecture of Philadelphia is, upon the whole, more western than anything in the West, though there is nothing quite so outrageous in Philadelphia itself as this building in St. Louis. But it is significant, we fear, of the same lack of anything that can fairly be called a public from which Philadelphia suffers that such a defiance of common sense and common decency should be offered to the people of St. Louis as has been offered them in the Fagin building.



THE SECOND SPRING.



THE religious bigotry of the sixteenth and seventeenth centuries, the weakened faith, carelessness and political fanaticism of the eighteenth, together with the abuse through a wrong use of the material employed and the lack of patronage left the glazier's art at the beginning of the present century mutilated and shorn of its beauty—a lifeless thing, apparently beyond resuscitation. It was destined, however, to be born again, to enter upon its Second Spring; the Winter was to pass away and this flower of beauty was to appear once more in the land.

It is my purpose in this paper to show how this Second Spring was brought into being, to briefly recount the history of the road by which the Glazier returned to his proper place in the world of art. All history tells us that colored glass windows are essentially a component part of mediæval Christian architecture, one of its greatest glories, and that Christian architecture in its turn is one of the component parts of Christian Art, which is nothing more than the manifestation under material forms of the beauty of God as it is mirrored upon the hearts of believing souls, the recitation of the *Credo* under forms of imagery and in lines of beauty. We cannot, therefore, expect to find any branch of Christian Art blooming and flourishing where faith is absent or half-hearted, but only where the atmosphere is charged with the fullness of belief. Faith, devotion, sympathy and encouragement on the part of the people, although necessary, are not enough in order to obtain the best results in any of the walks of Christian Art, it is all important that the artists themselves be imbued with a natural *art sense*, quickened by a strong spirit of piety.

If this be true we may rightly conclude that there never could be a revival or awakening of the glazier's art until these conditions exist once more: a believing people filled with a love for their faith, and willing, like the faithful of the Middle Ages, to make sacri-



Boston, Mass. GROUP FROM MEMORIAL WINDOW IN TRINITY CHURCH. Francis Lathrop.

fices in order to open a way for artists to express by their art this love and belief.

To turn from theory to reality we find to-day an awakening of Christian Art, a growing interest in ecclesiology, a desire to erect works of beauty in honor of the source of all beauty, and to make plain the same to mankind.

This has been brought about by a revival of faith, a growth of piety, an increase of devotion and inspiration; by the study of mediæval civilization among the learned; and by an earnestness of purpose among the clergy.

Continental Europe, in its recoil from the black night of unbelief, indifference and disorder that wrecked good morals at the end of the last and the beginning of this century, fell back upon the Faith of the past as its only anchor of hope. As the faith revived among the people it called for a material expression of its dogmas and history under forms of beauty, opening once again the fields of religious art to architects, painters and sculptors.

A similar revival of ecclesiastical art took place simultaneously in England; the sources, however, of this renewed life were not the same, they originated in the taste for mediævalism introduced by the writings of Sir Walter Scott, and by the impulse given to Catholic thought in the Established Church through the Oxford Movement of 1832.

Every branch of art found able leaders, men of enthusiasm, rare talents, and great energy: Pugin in England, Cornelius and Overbeck in Germany, Viollet-Le-Duc and Flandrin in France, and Giovanni Dupré in Italy.

These men inspired by Faith, recoiling from the self-seeking of the world, endeavored to rise to the pure regions of Christian Art. Each one, architect, painter and sculptor, entered upon their work with the spirit of faith, love and sacrifice in their hearts, and tried to make their art "a frame for the sacred picture of truth." Amid this revival the branches that developed most rapidly were painting and architecture, and among the handmaidens of the last the glazier's art almost at once took a leading position.

To Germany belongs the honor of reviving in our day the making of colored glass windows, although both France and England have a prior claim in so far as having produced the first picture windows subsequently to the French Revolution, but these works were nothing more than isolated efforts of individual artists, while in Germany on the other hand the subject was studied in all seriousness. Artists of ability gave their attention to the matter, and founded a school of glass painters. Munich became the centre of the movement, the worker in glass receiving the support of the then king of Bavaria, a monarch of æsthetical taste and discernment.

Between the years 1809 and 1820 M. Mortelégue painted with enamels on glass a figure of Christ for the Church of S. Roch in Paris; a few years after, William Collins, an Englishman, painted a window representing the marriage of the Blessed Virgin for the Church of S. Etienne du Mont, also three for the Chapel of the Blessed Virgin in the Church of S. Elizabeth at Paris; and somewhere about 1825 two windows were painted in Munich for a church at Ratisbon, after the designs of Von Hess. One was executed by M. Frank, a painter on porcelain, and the other by M. Schwarz, of Nuremburg.

These were the seeds of modern glass work, but for a while they were dormant, not fructifying until after the exhibition in 1831 of the paintings and designs of Frederick Overbeck at the Academy of Fine Arts in Munich. This exhibition gave an impulse throughout Germany to all forms of religious art and ultimately led to the establishment of glass works at Munich, under the patronage of the government. This artistic and ecclesiological movement, inaugurated by Overbeck, was led by Cornelius, an artist of talent, a man of thought, free from limitation and endowed with great energy. "Overbeck was," as King Ludwig said, "the S. John and Cornelius, the S. Paul of the revival."

John Frederick Overbeck, the apostle of Christian Art to the nineteenth century, was born on the 4th of July, 1789, in the city of Lubeck, in Germany. His family for generations were pre-



Duke of Albany's Memorial, St. George's Church, Cannes, France. Heaton, Butler & Bayne.

eminent for learning and for their faithful adherence to the laws of piety as they gathered them from the Bible. The father of the artist was a great lover of the classics and believed in the possibility of harmoniously combining them with Christian thought; he therefore admonished his son to place "Honor in the right chamber of his heart and the Bible in the left." At the same time he pointed out to him that "the artist's and poet's mind should be as a spotless mirror, his heart pure and pious at one with God and all mankind, for the path to the Holy Temple of Art lies apart from the world, and the painter will go on his way all the more unassailed if he stands aloof from the temptation of the senses."

Overbeck left home at the age of seventeen for Vienna, to study under Fuger, then the director of the Academy of Art, a follower of the School of David, and a painter of pseudo-classic inanities. From the first there was very little in common between the pupil and master. Overbeck, following for a time, as he did, the lines laid down by his father, was naturally led to turn his whole attention in loving contemplation upon the art-inspiring pages of Holy Writ, and consequently rejected with scorn the hybrid classicism of the Viennese academicians.

In the fifth year of his studies he quitted Vienna, turned his footsteps toward Italy, hoping to find in the works of the pre-Raphaelite masters safe guides in the realization of his own artistic aspirations. Arriving in



Church Window.

Ed. P. Sperry.



A MEMORIAL WINDOW.

Tiffany Glass and Decorating Company.

Rome he, together with a number of young German art students, formed a colony in the vacant convent of S. Isidoro on the Pincian, a colony of earnest workers, every one striving to realize, not only in their art, but also in their lives, a high ideal. This little band of artists, called in derision Nazarites, whose mission it was to regenerate religious art, were devoted to their ideal and believed that "the true home of art is within the soul before the altar of the Church, and that the tabernacle of art has its foundation in the worship of God." This was the origin of the modern German school of religious art, a school in which the *objective* is almost always sacrificed to the *subjective*, tradition holding a higher place than nature, the artists preferring to copy the works of men, rather than address themselves directly to the work of God; hence their drawing is painfully academic, their technique is hard, flat and devoid of all true feeling for color values, while their composition is too often subordinated to an arrangement that will better inculcate a doctrine or a mental conception than an artistic idea.

The views of the Roman colony were disseminated through the teachings of Cornelius at Munich and Schadow at Dusseldorf. Students flocked to Rome that they might sit at the feet of Overbeck, and imbibe his theory of art and learn his method of work. Joseph Fuhrich became a veritable second Overbeck. Many of these fervent enthusiastic artists returned to the *Fatherland*, where, in frescoed churches and painted windows, they made manifest their master's teachings. The defects of this school are more noticeable in the colored glass windows than in their paintings. The artists seemed to have forgotten that the primary end of a window is to admit light, and that the part it plays in the general ornamentation of the building is only secondary, hence its share in the adornment should be subordinated to its primary use, a truth well understood by the glaziers of the thirteenth century. The chief aim of the artists of the Munich school seems to have been to make their windows frames for transparent pictures, pictures which expressed theological ideas or historical facts. Color was consequently of little value in their eyes in comparison with form, as form was the true language of such ideas, hence they paid more attention to the drawing than to the color of the glass, using the glass simply as a background on which to paint a picture. This mode of work made their windows unduly prominent, hard, opaque and heavy, and as the glass they used was even in texture, limited, thin and uniform in color, the shadows and lines they produced with enamels were therefore disproportionately preponderant. Then again as they had to use thin and gaudy tints, in order to avoid making the glass opaque, their windows were tissue-papery and valueless as color decorations; moreover as their designs were so purely pictorial and not decorative the artistic effect, when the glass was set in mullioned windows, was greatly marred. That the above objections to the glass work of the Munich School are valid cannot be disapproved and are self-evident to every careful observer, who has studied the windows of the churches in Munich, in the cathedrals of Cologne and Glasgow. Often the designs are beautiful and filled with deep religious feeling, but are far more suitable for wall pictures than windows, and show that an art which is successful on canvas is just the reverse in glass. Or as George Edmund Street said: "That it would have been much more delightful to see such subjects represented on the walls than essayed in windows, where they disobey all the necessities of construction, are deficient in their effect and disagree in toto with all the architecture, the beauty of which they ought to have heightened and brought out." It is evident, the faults of the Munich school are dependent on the artists not fully recognizing that glass painting is a special art, with its own laws, its own powers, its own limits; that the laws of picture painting have no more to do with it than those of sculpture have; that it is light that has to be dealt with, not shadow, translucent glass, not solid canvas; or as an acute observer said: "A picture is one thing, a window is another, and that

which is adapted to have a good effect in one will, for this very reason, have a poor effect in the other. Take merely as an instance the vast difference which lies in the fact that in one case the painter has, as the material on which he is to work, an *opaque* substance, in the other one *through* which the light *freely passes*. In the former case he may manage his light as he chooses and as best suits his subject; not so in the other—he must take the light as nature gives it him and must do the best he can with it. He can resort to no artificial arrangement; if he does he blackens and spoils his windows."

One of the greatest efforts of the glass painters of the Munich school is undoubtedly to be seen in the Glasgow Cathedral, where they filled forty-two windows, with glass at a cost of one hundred thousand dollars. In this work they were free to display their knowledge and talents as glass painters, except in two particulars: that is, as to the choice of subjects and the traditional treatment of the same. These limitations have been given as an excuse for the inferiority of the windows in comparison with mediæval work, but in truth they were probably more an annoyance to the artists than hindrances in producing good colored windows. That this supposition is correct, the reader will agree with me if he bears in mind that the artists were all fervent Catholics, while the specifications read: "It must not be forgotten that Glasgow Cathedral is a temple dedicated to the religious services of the Established Church of Scotland, which is a Protestant Presbyterian Church. According to the principles and practice of the church, no representations in painting or sculpture are anywhere admitted for religious purposes; the services are very simple; there is no pomp, no symbolism of Rome. You will not use any symbol of the Virgin Mary, of the Holy Trinity, or of any persons of the Godhead; you will place no nimbus or aureole around the heads of any saintly person represented; apostles must not be distinguished by keys, swords, pilgrims' staves, scallop shells, nor are any to be clothed in the costume of the Roman hierarchy—angels holding scrolls inscribed with extracts from God's Word, conveying His gracious promises, may be introduced; but, with this exception, the paintings are to be direct historical representation of a series of scenes from the Bible, treated according to the laws of arrangement and design necessary under the technical conditions of glass painting." That Mr. Ainmeller and his associate artists may have found it somewhat difficult at times to arrange their subjects so as not to do violence to the prejudices and antipathies of the Scottish Presbyterian mind, I can well believe, but what that has to do with windows as colored glass windows, I fail to see. In surveying the windows of the Glasgow Cathedral, the artistic spectator is at once struck by their thinness of color, by their exaggerated diapered backgrounds, their inharmonious borders of white and red, the general refusal on the part of the colors to blend with one another, and a marked want of unity between the architectural ornaments of the glass and the architecture of the cathedral. The drawing of the figures are excellent, more particularly the Prophets in the North Transept designated by Baron Von Hess, which are strong in conception and expression, but this does not make up for their lack of color value, the first requisite in works of this kind. Through an excessive use of enamel the durability of the glass was greatly lessened, and in consequence many of the windows are to-day disfigured by blotches caused by the peeling off of the enamels.

The day of the Munich school of glass painting has passed away forever; it has reached its limit of development; it has fallen from the hands of artists into that of manufacturers. It was a noble effort, but failed of success because the nature of glass, the requirement of the art, and its place as an adjunct to architecture were imperfectly understood.

The English school of glass painters and glaziers was called into existence and given a strong Gothic bias by the revival of church building and the restoration of churches which had fallen into decay. An activity in ecclesiastical

architecture was brought about, as I have said before, by the growth of Catholic thought within the Anglican church. The effect of the teachings of John Henry Newman and other Oxford men upon ecclesiastical architecture and decorations was magical, societies were formed to study the subject, books issued, papers and magazines founded, in whose pages all points of ecclesiology were discussed and explained. The artist, the architect and the decorator, true to their inborn insular instincts, turned to Mediæval English church architecture for examples to copy, motives to develop, and rules to be guided by.

What Newman was to the new theology, Pugin was to ecclesiastical architecture and decorations, viz.: he was the Father, the Leader, the Lawgiver of the Gothic movement in church building. This singularly gifted man, Augustan Northmore Welby Pugin, a descendant of a family of the Swiss noblesse, the son of an architect, was born in London 1812. He first came into notice in 1836 as the author of a remarkable satire on modern architecture called "Contrasts," which was followed in 1841 by the Gospel of Church building movement: "True principles of Gothic Architecture," and this was supplemented in 1843 by "An Apology for the Revival of Christian Architecture in England." From time to time be put forth other literary productions, all relating to the same subject, among them his "Glossary of Ecclesiastical Ornament and Costumes" is the best known. His drawings are wonderfully beautiful, but his embodiment of them in wood and stone are often disappointing. There may be good reason for this, as he himself said, he never had the opportunity of doing a really fine work, of doing justice to his designs. The college at Maynooth is a case in point. It was agreed to expend £30,000 in carrying out his plans. When the work was under way the sum was reduced to £18,000.

In my judgment, although he was one of the most remarkable architects of his time, he was more of an artist, and, were he living now, he would turn his attention largely to decoration, as his genius and skill lay in designing ornamental details for the carver, the metal worker, the wall and glass painter. The most important and one of the most successful of Pugin's churches was that of S. Chad at Birmingham, and it is in this church that the student may study the revival of the glazier's art in its first throes for recognition as an important element in the completeness of a fully-developed Gothic church. Here, as in most of the churches of the revival, the true place of glass painting was not understood. Its value as a color decoration was lost sight of. It was nothing more than a slavish imitation of English mediæval glass.

Mr. Warrington, the maker of these windows, although sound in theory, holding, as he did, that "beauty and harmony are founded on propriety," that as a window is a "portion of a building, and, if painted, of its decoration," it should be in harmony with the style of the building; hence if the building be Italian, "so," he says, "in my opinion, should the windows and all other decorations be of a like character." But Mr. Warrington, like all the other glass-painters in England, was at fault when he gave expression to his views in glass, as his were only copies of those of the Middle Ages, he forgot that true art is never mimicry. In place of working out a window on Mediæval lines to something better than was produced in the Middle Ages, he was content if he succeeded in making a faithful copy. Sir Charles Eastlake, in speaking of the windows in S. Chad's, says: "Much of this glass is well designed, so far as the drawing of figures and character of ornament are concerned, but it has the all-important defect which distinguished most of the glass of this period, viz.: a crude and inharmonious association of color." This defect, together with equally as great a one: the absence of color, is now just as common in English windows as it was then, and what is more, they do not seem to be able to overcome it. It is true Mr. Haliday, a follower of Burne-Jones, has attempted in these later days to combine beauty of form



AN ENGLISH WINDOW. Clayton & Bell.

with beauty of color, but without any marked result. His failure is largely due to the glass he uses: it is too good, too free from blemishes, too regular in tint and texture; then again his color, as well as his good drawing and composition, is often marred by excessive and unnecessary leading. The Englishworkers in glass, as a rule, rest satisfied in being able to make a fair imitation of the windows of the Middle Ages. There is very little progress among them in the way of developing the art or striving after better glass. However, the windows of such artists as Clayton and Bell, and Heaton, Butler and Bayne are creditable as far as they go. They are almost always good in drawing, and much superior in every way to those of any other makers in Europe. If they are lacking in color, they are at least free from the raw and unpleasant contrasts so prevalent in much of the German and French work.

The English artistic world is waking up to the shortcomings of their glass, and plainly see the remedy. John Aldan Heaton, in speaking of the windows in Keble College, and comparing them with those of S. Pierre at Chartres, says: "The mere fact of modern glass being drawn on paper only, even by such accomplished designers as Mr. Burne-Jones, and then transferred to glass by copyists—copyists whom one feels inclined to class as "clerks"—points at once to an inevitable and fatal element of inferiority. What would a man think, having given an order for a picture to an eminent artist, when he discovered that the eminent artist had only drawn it in chalk on paper, and then handed it over to his young man to copy it in color on canvas?

"Yet this is what is done universally in stained glass; whereby we at once lose 'touch,' sparkle, breadth and originality of handling, and get in exchange the mechanical monotony of the copyist; with this further mischief, that whereas the canvas or the panel may bear, and often with great advantage, the most minute detailing and stippling, as witness the work of Memling or Van Eyck, such work is fatal on glass, where translucency should be a prominent characteristic.

"Indeed, stained glass, theoretically, should be very much of the nature of a *sketch* by an able hand, vigorous in conception, strong in handling of the principal forms, and slight as possible in the mechanism of detail; practically the glass should *be variable in thickness, ribby and full of air bubbles, so as to* produce gradation of color and enhance the jewel-like effect of its translucence—the leads, broad and plentiful, should supply the place of darks—formulæ which seems almost exact contradictories of most of our modern productions."

In these remarks Mr. Heaton has pointed out the principal cause of the defects, so noticeable in English windows, and at the same time has touched the keynote which will lead, if followed up, to great improvement in the art. If his suggestions are followed the English glazier will be led to travel the same road so successfully trodden by his American brother.

On the whole I believe I am justified in saying that the larger part of the English windows of to-day are extremely thin, often cold in color, and this in combination with their conventionalism, in spite of their good drawing, makes them rather tame and uninteresting when placed side by side with either Mediæval windows or the rich and deep-toned glass of the American school.

The modern French school of glass-painters is very similar to the German, with even a stronger tendency to look upon colored windows as easel pictures; apparently among the artists there is little or no leaning towards Mediæval processes or any apparent effort to attain in their work the incomparable beauty of the windows which adorned the French cathedrals of the thirteenth and fourteenth centuries.

It is surprising that the glazier's art in France has taken the direction it has, in view of the fact that the glass painter had so many good examples of the old glass at hand to study, and that kindred arts have followed national traditions with the most brilliant results. However it is undeniable that there has been great progress of late, but there never will be any work of artistic value done in glass of equal rank with French



A FRENCH WINDOW.

Designed by Charles Champegneulle.

painting and sculpture until the influence of the German and English schools are cast to the winds and the glass-painter returns to the study of the great picture-windows of his ancestors. Every one knows that the French artistic world is too broad, too progressive to allow its glass painters to walk much longer in the narrow way of the Munich school, and too original to let them be mere copyists of the past like the English. The French call upon all forms of beauty to give expression to their inherent art-sense, while with the Germans art is largely subservient to a theory, a literary idea, and with the English (I am speaking of ecclesiastical art) it is little more than a conscientious imitation of one style—the Gothic period—the dead past.

So far the most creditable colored glass windows produced in France are the works of M. Oudinot, Ed. Didron, Claudius Lavergne, Coffetier and Champegneulle.

The series of windows made by Didron for a church built at Carthage by the late Cardinal Lavergne are said to have great merit, although archaic in style and composition, and showing a decided bias on the part of the artist toward mediævalism. In contrast of method to these windows there is a rose-window in the Church of La Medline at Rouen, by Lavergne, an artist impatient of all stain-glass traditions, which has been praised by well-known critics for the beauty and knowledge shown by Lavergne in the modeling of the figures, the general composition, the richness of details and ornamentation.

The works of Coffetier are fair imitations of twelfth century glass, but are not so carefully finished and executed as the church windows of Champegneulle, made on the same lines, and neither artist is equal to Oudinot, whose style is that of the Renaissance. What I have said of French work holds good of the Belgian. All French and Belgian glass painters fall short of their aim, and this is because they all insist upon looking at a window as they would a painting on canvas, but if the day ever comes that they concentrate their minds upon the development of colored glass windows from a transparent mosaic starting point we will see marvelous results. If the art of glass painting, the making of colored glass and picture windows in the nineteenth century, among the Germans, English and French, has not attained perfection, it is because they have not taken up the mosaic system of the Middle Ages and developed it, a truth proven beyond peradventure by the windows of the American school, where this principle of work has been carried out with great and constantly increasing artistic success.

The American artist in glass is too much of an artist to imitate the works of the past, no matter how beautiful they may be, he sees that to imitate the art work of by-gone days is an open confession of inferiority, and the making a copy do duty for an original is a plagiarism, which is contradictory to the generally accepted principle that the true aim of art is to create and not to imitate, hence, he has endeavored to work on original lines, although he never hesitates to use and develop mediæval motives when they will serve his purpose, yet he is careful to work them out in conformity with the demands of our day, under the guidance of modern culture and the ever-increasing volume of knowledge. He knows that it is impossible to recall the spirit of the dead workman, the spirit of the Middle Ages, the aggregation of influences and forces that brought their work into being; he is essentially a man of to-day, using all the past can teach him in union with all that modern training can give him in skill of hand or modern science in instruments and materials; keeping himself in touch with his age, therefore, we find his work is original, a creation and not an imitation, the embodiment of an artistic thought and not a feeble portrayal of an effete idea of another age.

There is another point, a marked point, of contrast between the American artists in glass and those of Europe, it is this; he seeks for perfect color effects, paying very little attention to form, so long as he reaches his chromatic aim. For this he has been found fault with by some few foreign critics, "men ac-

customed," as a recent writer on the subject says, "to the crude color of Bavarian, Belgian and French modern glass, or to the sad, ineffectual glass of England, and are not capable of understanding our advance." Perfect color with perfect form are seldom found in union even in nature. "Color, to be perfect," says John Ruskin, "must have a soft outline or a simple one; it cannot have a refined one; and you will never produce a good painted window with good figure drawing in it. You will lose perfection of color as you give perfection of line. Try to put in order and form the color of a piece of opal." "Even in figure-painting the greatest colorists have either melted their outlines away, as often Coreggio and Rubens; or purposely made their masses of ungainly shape, as Titian; or placed their brightest hues in costume, where they get quaint patterns, as Veronese." "Any of these men would have looked with infinite disgust upon the leafage and scroll-work which form the ground of color in our modern (English and German) painted windows." The American workers in glass are essentially colorists, moreover masters of their materials, and have at last received a recognition from the most artistic nation in the world; France has conferred upon John La Farge the Cross of the Legion of Honor, for the great results that he has accomplished in glass. Until Mr. Louis G. Tiffany and Mr. John La Farge turned their attention to the study and making of colored glass windows, some ten years ago, Americans were content with imported windows, or with poor imitations of European work made in this country by English and German *artisans*, men of mechanical skill, often of considerable ingenuity, but with little, if any, artistic ability.

The above-named artists began their studies, investigations and experiments almost simultaneously. For a time they worked on identical lines, to at last diverge in their methods, although they both held to the mosaic system, believing it would yield the best results.

Mr. Tiffany aimed particularly to develop the "inherent properties" of the glass to their "fullest extent" in color and texture, in order to obtain in the glass itself light and shade, through depth and irregularity of color in union with inequality of surface, in that way hoping to avoid the "*dullness and opacity*" which invariably accompany the use of paint.

Mr. La Farge endeavored to obtain the same effects by separating his lights and darks from one another by ideal-lead-lines, in some cases plating glass over these lines, seeking to lose the lines or more truly making them apparently a part of the glass, or, in other words, working out his drawing with small pieces of glass, assisted with carefully studied lead-lines, and bringing the whole together, as happily expressed by Mr. Heinigke (who is himself a clever artist in glass), "with a glaze by plating one, two and three thicknesses of larger pieces over them, much as the human skin covers the flesh and blood of the hand."

Either system requires the strictest attention of the artist, not only in drawing the cartoon but in every step taken in the process in making the window; nothing can be left to the mechanic, as the final result depends on the proper adjustment of the color values—the artistic arrangement of the leading—in their relations to the *tout ensemble*. It may be said with truth of both these methods that they are the artistic methods par excellence, "a new style of glass-painting, founded on the most perfect practice of the mosaic system," viz.: the putting together in juxtaposition of various pieces of glass of divers colors and shades, so as to form a translucent picture, where depth of color, light and shade, correctness of drawing, roundness and distinctness are carefully preserved.

Mr. Tiffany and Mr. La Farge have had many followers, but only a very few have obtained marked success; among these Francis Lathrop and Maitland Armstrong stand in the front rank. The reason for the non-success of the many is the want of a true appreciation of color in all its subtile variations and relations.

For the same reason American picture-windows are not appreciated by some foreign observers.

That my readers may understand just how American windows are made, I will attempt to epitomize each step taken in the process of making one, from the inception to the completion.

The artist or designer having chosen his motive (by motive I mean that which actuates or produces a definite conception in the mind of the artist before his thoughts become concrete or tangible), places it upon paper. When making the designs he always keeps in mind "that the function of colored glass is to modify and not to impede the light, and also that, being glass and being colored, transparency and color are its two essential æsthetic characteristics, which must be preserved at any cost;" therefore his scheme of color is studied with great care in its relation to the ever-varying light to be transmitted through the glass, the harmony of color with color, and its psychological influence upon the beholder; whilst his drawing is planned so that his figures profile against the background, as if they were intended for a low-relief; and his leads are so arranged as to assist the drawing, to emphasize the outline, to deepen the shadows, and their use on the other hand avoided where they might diminish the translucent qualities or brilliancy of the glass.

From the finished cartoons two outline transfers are made upon heavy manilla paper. One of these is cut into patterns by means of a three-bladed scissors, which in following the lines of the drawing not only separate piece from piece but removes at the same time a portion of the paper equivalent to the heart of the lead, in this way making an exact pattern. These patterns are placed, in their proper order, upon a sheet of clear glass with bits of soft wax; the space to be finally occupied by leads having previously been indicated with lines of black paint; the whole is then placed against the light. The second transfer is not used until the window is ready to be put together, which will be explained later on.

The artist now makes a careful selection of the glass he wishes to use in the window, not only for color, but also for movement, light and shade, or whatever may help to carry out his theme both in color and form.

The glazier then, with the artist standing by, with the cartoon and color scheme before him, removes one of the paper templates from the glass easel, and passes a sheet of glass of the approximate color over the opening left, until that part of the sheet is found which corresponds with the color sought. Sometimes a dozen or more sheets pass through the glazier's hands before the right piece is found. When found, the paper pattern is placed upon the glass as a template, and the glass cut to the same shape, which is then attached to glass easel with wax, taking the place of the paper pattern. This process is repeated until the entire window is built up. It often happens the right piece of glass cannot be found, so one piece is taken for the form and this is plated with another for the color, or where the color is not what is wanted, in tone or shade, it is plated with another color, and in some cases more than one plating is used. This method is truly defined as painting with glass, and the beautiful results obtained in its practice fully justify the process. Where the window is to be seen as much by night as by day, the glass is picked for its beauty as a reflecting medium as much as a transmitting one, so as to count both as an opaque and transparent mosaic.

The next step is for the artist to paint the flesh of the figures; this is done with fusible metal oxides, which are made to attach themselves to or become a part of the glass by heat. In this branch of the work very little advance has been made over that of both the old and modern masters, which at its best was and is still unsatisfactory. Here is a great field in which there is much to be done. Americans have heretofore paid too little attention to the matter, although it is one of vital importance, and is many times the rock upon which their work is wrecked. I do not mean to say that our painted work will not compare favorably with that of other nations, but it is not as good as the best work of two or three European masters of the art. This state of things, however, will not last much longer, for the good reason that



THE FALL,
(THE CARTOON.)

Rosina Emmett Sherwood, Designer.



THE FALL.
(THE WINDOW.)

Tiffany Glass & Decorating Co.

a number of artists of ability are studying the subject in a most serious manner. The painted part of an American window will shortly far surpass the work of all other people, just as much as the mosaic portion does now, so that ultimately we will stand, in every respect, pre-eminent in the superlative degree as the makers of colored picture windows.

Our window is now ready for the leads. The glass is removed from the transparent easel and placed in a tray, carried to the work-bench of the glazier, where the second transfer from the cartoon has already been placed flat upon the bench.

A piece of glass is selected from that in the tray, laid in its proper place on the transfer, to form the starting point, to which piece after piece is added, until the whole window is put together, each piece being connected with the next by a narrow line of lead.

The strip of lead used has lateral grooves to receive the edge of the glass, while the anterior and posterior faces are smooth. The metal being soft and flexible, the glazier has no trouble in bending it around the glass, no matter what its contour may be.

Having in this way leaded the first piece of glass, it is held in its place on the bench, over the corresponding lines of the transfer, which is the glazier's guide, by the aid of short, round nails, tapering to a point at one end and square at the other. The next piece is then joined to the first, the edge of the second being inserted in the free groove in the lead, another piece of lead is bent around the second in its turn; in the meanwhile the nails are removed to the outside of the last piece added, and the lead-strip is continued by fitting the end of a new one to the one used. This process is repeated until every piece of glass is fastened to its fellow and the whole window is upon the bench. The joints and pieces of lead are then soldered together on both sides of the window, and at the same time tinned in order to protect them from adverse atmospheric influences.

Where stay-bars are needed the window is fastened, at short intervals, to the same by copper wires, which are soldered to the leads. The bars are so placed as to interfere as little as possible with the drawing or the light and shade of the design; in many cases the bars are made to follow the leading, and often add to the general artistic effect.

In the American school the subject of leads and leading has been studied with great attention, more so than in any other, because the mosaic system requires it in the very nature of things, and consequently there have been vast improvements made, both in the leads and in the methods of using them.

Leads are now made that will bend laterally, but in no other direction, and are used where the window is exposed to strong winds; strong and broad leads are made in forms which give them the appearance of being very much smaller than they are; others are made like hair lines, and yet are strong.

In addition the American worker has invented a number of other mechanical contrivances for fastening the pieces of glass together. The most practicable are those respectively of Mr. Bray and Mr. Belcher. The first is by far the best, because it is freer, more artistic, and can be readily worked in union with every form of leading. With either of these fasteners the finest mosaic can be made, the smallest pieces of glass united one with another in endless combinations.

The mediæval glass-worker was compelled to lead his window to excess, often to the detriment of his design, because he could only make his glass in small sheets; but the modern work does not labor under this disadvantage, although in Europe excessive leading is affected—an affectation born from an unjustifiable imitation of the past. In America, however, as I have said before, every lead line is made to do its duty not only as a fastener but as a line in the composition, sharing largely in the design, helping the shadows and emphasizing the drawing.

The great fault hitherto with American artists in glass has been their disregard of the relationship of their windows to the architectural surroundings; and, again, through their clear knowledge that the true value of glass as a decorative material is dependent upon its

color, the combination of the same, the prismatic play of light, and the niceties in light and shade has made them too often careless in their drawing.

This state of things is rapidly improving; in fact, even now it is a thing of the past, and the future holds out great promises for American glass, American methods and American artists. The prize is ours if we will but take it.

There is very little more to be said about the colored glass windows of today beyond the fact that the *glazier has returned*—returned to stay; that the Second Spring is here, charged with bright promises for the coming Summer. One more word and I have finished. As the future field for colored glass and picture windows will be largely an ecclesiastical one, it behooves the artist in glass to study the principles that govern Christian Art if he hopes to reach the highest point; and it will also be well for him to remember that the glazier's art is but an auxiliary to architecture, subject to the *imprimatur* of the architect.

Caryl Coleman.



Byzantine Architecture.

Part V.—BYZANTINE CONSTRUCTION.



E should think that a contemporary, and probably an eye-witness, of the colossal works of Sta. Sophia would have given us some interesting particulars of the methods employed in building it, of the scaffolding and centering used, and the means of raising the materials, more particularly when there were huge stones to be lifted; but Procopius' eye was single, his sole object was to glorify Justinian, and though we might hope he got his reward, it is to be feared he did not, or he would hardly have published his book of scandalous anecdotes of the Court, and of his first master, Belisarius. As we can get almost nothing from him, we can only hazard a conjecture as to the presence or absence of centering for the original flat dome and for the present one, and all the other particulars we can get are from the existing works. The knowledge that Paul the Silentiary had is put into a poetic form, and this form is not likely to deal with such matters as building, except in so vague a way that it can be but of little use to mere prosaic constructors, and besides its being a poem, it is in Greek. What Salzenberg got to know of the construction of Sta. Sophia is locked up in German, so that anyone treating of Byzantine construction would be either forced to deal in generalities, or to omit everything that could not be gathered from published drawings, or an examination of buildings as they now stand. Fortunately, however, we have a genius amongst us, who, after having laid open to all eyes the economical construction of the Romans, has bestowed his time and talents on making Byzantine construction equally clear. I, of course, mean M. Auguste Choisy, of Paris, the Engineer-in-Chief of Roads and Bridges. His professional avocations made him anxious to interrogate the past, and to see if the methods formerly employed could not aid him in the present; being a man of genius, he said to himself, Why should I first build a wooden bridge to build a stone one, and then throw the wooden one away? Did the Romans do so? After examining the illustrations of Roman work and pondering on the subject, he sought in the works themselves and in the methods now employed in Italy the answer to his questions, and found the answer to a riddle that had completely posed mankind ever since Roman methods were generally abandoned; for the tile skin of vaults is still practised. Having his observation and his judgment sharpened by his first successful attempt, he sought and solved the more difficult problem of Byzantine construction, and in 1883 he gave to the world his second great work on "The Art of Building among the Byzantines."

It is on this work I must mainly rely for giving you the following descriptions. M. Choisy draws the line of the influence of Roman construction at the Adriatic, and considers that as to the west of it the methods pursued were Roman, so to the east of it all the methods were Greek, modified, of course, by the influences of Asia.

"Persicos odi, puer, apparatus" ("Persia's pomp, my boy, I hate"), tells us that in Horace's time the Romans were not unacquainted with Persian habits, and we may, I think, point to Persian domes as the models from which the Pantheon was imitated, though it is, of course, possible that domes of large dimensions were used at an early period in Asia Minor, which successive invasions may have destroyed, not to speak of the destruction

wrought by the savage Tamerlane and his Tartar hordes. The emperors of the lower Empire were constantly at war with the Persians for the possession of Mesopotamia and Armenia, and the Byzantines must consequently have been even more familiar with Persian methods than the Romans. M. Choisy came to the conclusion that as the Romans had found a cheap method of vaulting by first covering a light centre with a network of brick, and then filling this with horizontal rubble work, so the Byzantines had turned their vaults without any centering at all. He says:—"Analyse a Roman vault of Western construction, you will scarcely find in it anything but a little framework of brick, which is its bony structure, its skeleton; the rest is only a structureless backing, a filling of pebbles and of mortar, a concretion pure and simple; one of those wisely primitive works from which intelligent labor is purposely excluded, and which shows an immense material force, the passive instrument of a powerful will. In the East, on the contrary, in the Grecian countries, all is combination, all is calculation; each fragment has its office, and its appointed place, in the vault of which it makes a part; besides the ruling idea which conceives, the adjusting force which executes, is seen throughout: one feels transported into an entirely different surrounding; and the monuments of the two schools thus betray, even to their smallest details, the difference of the hands they have come from. I try to see a point of contact, a community of thought and of tendency, between these two schools, and the only common tendency that I can seize on is this: on either side they wished to be freed from the subjection of helping works and of temporary aids. Is this a result of imitation, or the effect of traditional influence in the two schools? For my part, I incline to see in this search for economy one of those chance meetings which good practical sense would bring about without any exchange of ideas. Whichever it may be, the analogy is only found in the principle; directly one comes to the details of applying it the differences reappear, and the two schools separate from one another.

At Rome, where the vault is a monolith made from a plastic material, the solid mass which forms it requires a mould, and the Roman architect gives in effect to each vault its centering. But he is loath to build this centering merely to destroy it afterwards; and with this thought he applies a mixed construction, half brick and half timber. The vault is finished, the timber part alone disappears; all the brick work remains embedded in the mass, and associates itself with its resistance; to embody in the vault the greater part of the mould which has carried it, is, in short, the Western method. Amongst the Easterns the notion of saving takes a more positive form; the question for them is not to lessen the expense of the helping works, but to omit them. The Greek architects frankly proposed to themselves the problem of vaulting without centering, and, thanks to the ingenious disposition of the materials, they were enabled to solve it. They raised the greater part of their vaults by building them in the air, without support, without a resting-place of any kind; their method is not a variation of that of the West—it is a system altogether different, and one not even derived from any Roman source. (A. Choisy, "L'Art de Bâtir Chez les Byzantines," Introduction, 4to. Paris, 1883.)

Having now explained the ruling idea, I will treat of each particular part of the structure.

Byzantine walls mostly have the stones of the rubble larger than in Roman work, and this rubble work was never rammed. Instead of the one course of bricks about every 5 feet, they used from three to five courses of brick about every 10 feet in height, and in fortification about every 5 feet. Byzantine bricks are said to be generally larger and better burnt than the Roman ones, and the mortar-joint is rarely less in thickness than the brick and often thicker. At Blachernæ the mortar is about two-thirds of the whole material. To make this mortar properly resistent, broken tiles that would pass through a 9-16 inch mesh were mixed in it. This mortar is called by Vitruvius Opus signinum, and

was used as a hydraulic cement and partly as a material to resist heat. It is still used throughout Macedonia and is now called "Khorassan" work. The Byzantines preferred their lime made from marble, but used limestone when marble was difficult to get or too expensive to use, and, from the present Eastern practice of keeping slaked lime for years in huge pits, it seems probable that it is a continuance of the old Roman custom.

As I mentioned in speaking of the churches at Athens, the walls faced with stone have generally one or more courses of brick between the stone courses, with very thick mortar-joints; this gave more soft matter to squeeze than if the stone facing had been laid with thin joints, and there was consequently less danger of separation between the facing and the rubble backing; the bricks, too, generally project beyond the stone, and act as bonders to the rubble. Byzantine columns were marble monoliths, mostly used against the beds, with square, squat caps, beveled off at the bottom into the circle. If the pier supported was a parallelogram, the thick abacus was generally a separate stone, and was but slightly beveled at the sides and deeply at the ends. Bronze rings, sometimes with fringes, are frequently added above the base and below the necking of columns, to prevent scaling or splitting; many cases of their use may be seen in Sta. Sophia. When columns were required of such a height as to render the use of monoliths impossible, as in the case of the cistern of Philoxenus, there was a circular piece of stone or marble *on its bed*, much larger in diameter than the columns, between each shaft, on which the upper column stood, while the lower one was sunk into it; this acted as a restraining ring—at any rate, to the lower shafts. Both metal and marble rings are found at the junctions of the slender shafts surrounding piers in Gothic work. Sheet-lead was inserted by the Byzantines between the junctions of columns with their caps and bases.

There is no time in a lecture to give every example of the ingenuity displayed in economizing centering, when centering had to be used; but, I may say roughly, that it was done, in the case of stone vaults, by building them in unbonded sections, so that the set of centres used for the first section could be used for each succeeding one. We shall see hereafter that this principle of unbonded sections was carried out in brick vaults where no centering was used. The baths of Diana, at Nimes, which is Roman work, is vaulted by means of ribs and panels; the stones forming the panels are laid into the rabbets of the ribs, and require no centering. The temple of Diana, close by, is vaulted in much the same way, so that one rib centre is all that is required for the whole building. Arches are often made by using square voussoirs, with the taper in the mortar-joint; and as often as not, they are built with a course or two of brick between the stone cubes.

We, who build brick barrel vaults on centering, make each course parallel with the side walls, and each brick, being placed on the centering, naturally falls into a normal to the curve; if we were to try and build such vaults without a centre, when we got up to the angle of slipping; we should be at a loss to know what to do, unless the cement were strong and quick-setting, and the springing were sufficiently thick or tied down, to prevent the sides from toppling over.

The Byzantines hit on a novel expedient; they built their vaults in slices the other way, *i. e.*, they stuck the bricks against the heading wall or arch, where they were kept by the adhesion of the mortar, till the arch was keyed, and then another slice or arch could be built against the first; there being no bond, the mortar alone secured the adhesion of each ring to the next. There was, however, the same difficulty that there is in standing up books vertically, the least touch will overset them, and we therefore put them at an angle, with the top touching the wall. The Byzantines built out a skewback on the heading wall or vault, so that besides the adhesion of the mortar the position made the bricks less liable to fall, only from the bricks being laid sloping, the soffit of the arch was not flat, but like

the teeth of a saw; this, however, made a better key for plastering or mosaic.

The Byzantines eventually brought out the ends of the springing so as to form a curve on plan. This scheme seems to have been adopted in the aisles of Sta. Sophia at Salonica. Sometimes this scheme was only partially used; the springing courses were built in the ordinary way, parallel to the side-walls, up to the slipping-point, and the remainder was then vaulted over in sections at right angles as before. At Hadrian's aqueduct at Constantinople a brick vault has been built up to support the stone one that was giving way, and the builders managed to keep up the springing, until the two sides were within the length of a brick apart (some 2 feet, I should guess), and they then wedged bricks in at right-angles.

If a barrel vault was built from one end only, when the work got nearly to the other end, they wedged in bricks at right-angles to the face of the rings; when it was begun at both ends, the middle was filled in by putting alternate slices against the springing and against the arches, so that the ends of each course were abutted, as may be seen in the vaults of the cistern of Philoxenus, or by making these in sections of several courses, until the centre could be filled in with the length of one brick. Another plan adopted was to build the end of the vault on a rough sort of skeleton centre of bricks, leaving a toothing inside, and continuing the vault by means of toothings; this method was mostly employed when rough stones were used, which could not, like bricks, be held up by the mortar only, but could be secured by it when one end was wedged into the toothings. In an ordinary groined barrel vault on a square plan, the sections through the crown on both axes are straight lines. The Byzantines not only thought that the crowns of vaults so built were too weak, but the ellipse formed by the groin points gave them too much trouble, as it did the early Gothic builders. Consequently they made the groin point a segment of any height less than a semi-circle, and made each panel of the vault of the same section by letting the section revolve on the central axis. A vault of this sort has a peculiar appearance, and if horizontal sections through it are made, they take the form of quatrefoils, and if a vertical section is made through the crown, the ends of the curve are rounded upwards. This peculiarity may be seen in the aisle vaults of Sta. Sophia. Out of stone countries domes were mostly built of brick, and the plane of the rings was not normal to the curve, but flatter. These planes, if produced, formed an inverted cone, whose apex was much above the centre of the dome, and the cone was made flatter as it approached the crown. In a few examples, when the dome had been raised to the slipping-point, it was carried on by nearly parallel rings, so that above the slipping-point it was almost a pure cone made by the revolution of a triangle. This may be called the Arab fashion, as it was a form of dome greatly favored by them. In some cases the top of the dome was made on a platform and put on in a single block. M. Choisy says he saw this being done in a Greek workshop at Smyrna, to finish a dome built without a centre; the tops of domes were sometimes formed into little domes of sharper pitch.

Domes up to a certain period—M. Choisy says to the ninth century—were made with an abutment at the bottom, carried up vertically, and then joined to the segmental cap by a concave curve, as at Sta. Sophia, the windows being formed in the vertical part. It was the custom, up to a certain epoch, to stiffen the shell of the dome by internal ribs, as at Sta. Sophia, in which there are forty ribs, with forty gussets between them. In later work ribs are often used as an ornament, and are then, I believe, merely bricks stuck on; but at Sta. Sophia the ribs are bonded into the shell. There is another form of dome of very striking appearance, *i. e.*, those that are fluted, as that at St. Sergius and Bacchus. These are so common in later examples as to be rather the rule than the exception. This form admits of a circular dome being placed on an octagon, the points of the octagon coming in the

centres of the flutes. The points of the flutes act, like ribs, as stiffeners.

Another method of construction for domes which preceded Byzantine times, is found in the temple at Diocletian's Palace at Spalato, called by Adam the Temple of Jupiter, and shown at plates 33 and 34.* This method consisted of turning arches, and filling in between the spandrels with smaller ones, then turning arches from centre to centre on the extrados of the arches in the spandrels. M. Choisy believes that domes of this sort may be built without centering up to the slipping point. This method is correctly shown in "L'art de bâtir chez les Byzantines," woodcut 76, p. 69, and in the plate No. 14, M. Choisy having found Adam's plates incorrect. Adam being a gentleman and not a bricklayer, never seems to have asked himself why it was done, although he drew the dome partly covered with plaster, which proves that it was a constructive and not an ornamental expedient. There is, however, a semi-dome to the vestibule of the tomb of St. Demetrius at Salonica, which, from being set out in a pattern and having ornamental bands in the arches, was evidently made to be seen. I made a rough sketch of it under difficulties. I had no candle, and could only sketch by looking at the place, and then putting it down on the other side by the light of a little window, and I was too lame with sciatica to mount a ladder and measure it, even if I could have got a ladder. I mention this so that some of my hearers who visit Spalato and Salonica may carefully measure both.

Every architect knows that the dome of San Vitale is constructed of hollow pots, the pointed end of one, put into the open end of the other, spigot and faucet fashion, a double line of these was carried round in a spiral, and made the whole construction light from the centre being hollow and without thrust. The father of the late Professor Cockerell used pots like these for the filling in of the spandrels of a vault he built in the Cutler street warehouses for the East India Company. This construction of mortar, with a core of hollow pottery, was used for the vaults of the Chapel of St. Satyrius at Milan, and at the Baptistery at Ravenna, both of the fifth century. M. Choisy says this construction is still used in Syria, Jerusalem and Jaffa, only there they are used to form voussoirs; the terraces over cupolas were also made of pots, this construction he found at *Μονή τῆς χώρας*. There was also another plan used: the ordinary segmental roofing tiles were laid as voussoirs, with the hollow part upwards, and over the joints others were laid the reverse way, making a chain bond of every course; this is found at the buildings of Mt. Athos.

For forming niche heads in brickwork, two or more courses were adopted:—1st, the outer arch rose from a flat skewback, and the joints, though slightly convergent, did not converge to the centre; 2nd, the lower part of the niche was carried up horizontally to the slipping point, and above the courses were convergent as before. When, however, the niches were flat, they often made the joints converge to a central vertical line. This form is called by the French "The fern-leaf pattern."

The first attempts at doming over spaces that were not circular were made by converting a square into an octagon where the pendentives are small and corbelling may be used, but an octagon was found to be almost as inconvenient as a circle, and circular domes were turned over squares by means of squinches. At St. Nicodemus and Daphne, at Athens, and in the west at Sta. Fosca, and in the domes of Parma and Piazenza instead of squinches we find conchs or shells. The various ways in which squinches and conchs are constructed are endless. The first dome with pendentives on a square plan, known to M. Choisy, is at Djerach, and in this case the pendentives and the dome itself are struck from the same centre, and the joints of the pendentives are normal to the curve; the ends of the pendentives merely abut against the arches, but where the dome proper, in stone domes, springs at the level of the crown of the pendentives,

* "Ruins of the Palace of the Emperor Diocletian at Spalato." By R. Adam. 1764.

it abuts on a skewback worked on a course of stone over the arch. There is another case with a much flatter dome, at the Mosque of El-Aksa at Jerusalem, supposed to be of the age of Justinian; both of these have this peculiarity, that the upper courses of the pendentives are thicker in the middle than at the ends, made so by means of a convex curve at top, and the joints are without mortar and beautifully worked. M. Choisy says that brick domes on pendentives of Roman times are found in the valleys of the Mæander and the Hermus, but that the practice only became common in Byzantine days. These domes were of two sorts, those in which the dome and pendentives were struck from the same centre, and those in which the pendentives and cupola were of a different radius; a course of bricks was originally laid over the arches and chamfered to make a skewback against which the curve of the pendentive abutted, and the pendentive was backed up so as to form a square outside, consequently the dome had the appearance of rising from a square. For the sake of economy this brick skewback was often left out, but it was found that the acute angle formed by the abutment of the pendentive against the arches was too weak, and they then abutted the pendentives at right angles to the arches, either by a two-centered arch or by the arc of a circle, which prevented the pendentives being the arcs of the great circle, and as the dome took the form of the top of the pendentives, the domes were either squares with quadrant angles, or like an orange squeezed in on four sides; these domes may be seen at St. Marks and at Sta. Sophia, at Salonica.

These deformed shapes had, however, this advantage, that they could be used for oblong spaces; he observes, too, that when the cupola was of a smaller radius than the pendentives the Byzantines used thin bricks for them, not thicker than a roofing tile. The Byzantines gradually got to make these pendentives and domes as flat as was convenient, being only restrained by the impossibility of abutting the horizontal thrust when they were too flat.

It was not until the sixth century that domes were used of smaller radius than their pendentives, Sta. Sophia being one of the first known examples. M. Choisy also believes that it was not until the Macedonian dynasty, from the ninth to the tenth century, that drums began to be used and that St. Bardias is one of the earliest examples (1028 A. D.).* In the decadence of the Byzantine Empire pendentives became pure corbelling, which enabled the Byzantine architects, when working for the Turks, to cut them into fancy shapes.

To revert to the groined vault, no matter whether the plan was square or oblong, if the line of the groin point became a semi-circle and the vault was generated on this, it became a dome, the pendentives being an integral portion of it. These domes could be worked in slices just as the groined vaults were.

In almost every Byzantine church you see wooden ties that are carved in the fine ones and are plain in the ordinary ones. M. Choisy, who has visited a good part of Asia and Africa, recognizes in these ties a triple duty. First, they acted as bond to prevent unequal settlement while the work was being carried on; secondly, as ties or struts, to prevent the deformation of arches, vaults and domes while the work was green; thirdly, as safeguards against the shocks of earthquakes to which Asia Minor is so subject. The Byzantines did not trust to these ties, as all the thrusts were amply abutted—they were only an additional precaution in case of earthquakes.

Probably the architectural students remember that the Temple of Diana at Ephesus was built on a marsh to minimise this risk and that the foundations were laid on a bed of sheepskins and charcoal, the remains of which were found by the late Mr. Wood. Constantinople was equally liable to this terri-

*On the architrave of the door is a Greek inscription stating that the church was built by Christopher Bardias his wife and family, in honor of the Virgin, with the date of the 12th indiction, 6537. This inscription is given by Texier and Pullan in their Byzantine Architecture, 1864, and by Duchésne and Bayet. "Mémoire sur une Mission au Mont Athos." (8vo. Paris, 1876.) And, curiously enough, they both agree in the date, though not in the translation. The era of Constantinople was 5508 or 5509, giving 1028 or 1029. From the acknowledged inaccuracy of Texier and Pullan, I have taken Duchésne and Bayet.

ble affliction; it is stated that a series of shocks took place for eleven consecutive months. The original dome of Sta. Sophia was so shaken that parts of it fell on two occasions, and Antioch, Berytus and Nicomedia were destroyed by earthquakes during Justinian's reign. M. Choisy tells us that he visited Echekli a few months after an earthquake, and found to his astonishment that the mosques with domes were standing almost untouched in the midst of the ruins of the town. Vitruvius (Lib. 1, cap. 5, par. 3) tells us, that walls of cities should have their faces tied together frequently with charred olivewood. At St. Demetrius, at Salonica, a continuous band of planks was run through the arcades on the top of the caps of the columns. In the case of barrel vaults, there were two longitudinal plates on each side wall at about the slipping-point, with crossties halved on them; in groined vaults the plates and ties form a rectangle passing through the centres of the piers, and in domes four angleties go across as well. In the cistern of the thousand and one columns, there are holes at the top of the caps, on the four faces, where ties, in round or half-round timber, tied them to the other caps. All of us have seen the iron bars that run across the arcades of Westminster Abbey; and in certain cases the Byzantines used iron ties, as at Sta. Sophia, and in cases where an iron trellis was used, as the bond for piers, the ends of the bars were not let in, and run with lead, but were caulked up and down so as not to split the stone.

It should be remarked that the conception of abutments by the Byzantines was diametrically opposed to that of the Westerns; the Westerns put their abutments outside, the Byzantines inside. The only exceptions I recollect are in the case of San Vitale at Ravenna, and the church of Dighour in Armenia. Even as regards the sets-off to walls, the Byzantines usually make them inside. By the Byzantine method more ground space was got, with very little extra expense; but to our eyes the fact of the buildings being vaulted is not expressed, and those who like buildings cut up into slices complain of the want of light and shade.

The difference of thrust between groined vaults and domed structures is this: In groined vaults it is a direct outward diagonal thrust in the direction of the groin points, while in the dome it is a diffused thrust all round the periphery, and the aim of the Byzantine architects was to counteract this diffused thrust by other vaulted structures; so we see that, as a rule, the thrust of a central dome is abutted by wide barrel vaults on the four sides.

Another method was to abut a dome on pendentives, by four flat apses with domical heads. Sometimes a mixture of both is used; two sides are abutted by half domes, and two by barrel vaults. At the Church of Sti. Apostoli at Athens, apparently once a baptistery, the thrusts of the four barrel vaults are abutted by triangular domes behind the columns, and by the heads of the niches. The plan of this church is set out geometrically; from the centre of the central dome a circle is struck; where the north and south and east and west diameters cut this circle are the centres of the apses; where the diagonals cut it are the centres of the niches. Sta. Sophia is the mixed case before mentioned, where two sides are abutted by apses, and two by barrel vaults.

The central dome and its pendentives are abutted east and west by hemicycles, and north and south by comparatively narrow arches; the hemicycles give abundant abutments, but the arches are of themselves insufficient, consequently the architect has carried two enormous piers on each side, from the nave to the external wall: the piers are hollow, and offer two spurs of irregular thickness—those opposite the east and west arches of the nave being thicker, while the thinner spurs abut the pendentives.

In arranging the aisles, the point aimed at was to get the east and west arches of the dome to spring as low as possible, so as to get the upper gallery of the aisles as an abutment. The dome, which was originally too flat and not sufficiently abutted, fell, and had to be replaced with one of less thrust—*i. e.*,

of greater height ; after this, a sinking in certain places occurred, the ground on which the four piers of the dome stood compressed more than the other foundations, the vaults between the inner and the outer main piers were forced out of shape, and had to be kept up by arches added underneath, supported on those piers before mentioned that are nearly 6 ft. square, and which choke the circulation in the aisles ; the pavement of the upper galleries slopes inwards to an extent that is visible, and these settlements happened within half a century of the building of Sta. Sophia ; the pendentives are now surrounded with large masses of material which had to be built round them to prevent the building going to ruin; but in spite of the original fault of construction, the church has lasted more than 1,300 years, and is one of the most magnificent creations of architecture. Its conception was too original to be perfectly carried out at the first attempt, but subsequent Byzantine architects continuously strove to avoid its defects, while following it as their model, and the best way to find out where it was weak is to compare it with the subsequent churches for which it has acted as a model. At Sta. Sophia, at Salonica, the arcades, north and south, were set back 11 ft. 4 in. from the face of the piers, and these barrel vaults have been found sufficient for the purpose, without requiring any other abutments, only in this case the dome is 33 ft. 6 in. diameter, and that of Sta. Sophia 103 ft. When the Byzantine architects had to work for their Turkish masters, they ultimately abutted the north and south sides as well by hemicycles, as at the mosque of Achmet. At the mosque of Adrianople, built for Selim II. (1566-74), the architect got eight points of support instead of four, omitted the grand hemicycles, abutting the skew sides of the octagon and the kibla by apses, three of the straight sides by buttresses, containing staircases, and the fourth side by the walls of the recess of the kibla.

To me the constructive improvements introduced by the Byzantines form a most fascinating study, as one can follow each improvement, from the simple wall to the abutments of vast domes, and can see the persistent efforts made to cure defects and to get over the difficulties that arose in practice, while in addition to this, one sees that the eccentric shapes that vaults and domes often took are purely the result of the unimpeachable logic of construction. I think we in England have hardly shown a due sense of the gratitude we owe to M. Choisy, a government engineer overwhelmed with work, who has devoted his holidays and the small leisure he can find to the elucidation of methods of construction that, before his publications, were absolutely incomprehensible—who has followed up the subject with the sagacity and perseverance of a sleuth-hound; who has visited Italy, Dalmatia, Greece, Macedonia, Thrace, Asia Minor, Syria, and North Africa to ascertain the different methods of Byzantine construction, and to make sure of his conclusions ; no ruins and no alterations that were being made have escaped his vigilant eye, and he has observed all the current methods of construction to see if any of the ancient practices are still preserved. I trust you will signify by your applause the benefits he has bestowed on us and on the world.

Professor Aitchison.

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CHAPTER XIII.

RAYMOND'S ERROR.

THE "law of required change" is very active in natures like our friend Winter's. Ralph lived chiefly at the periphery of his experiences, where unrest is strongest and the tyranny of the mood or moment fiercest. He had been led to accept a position in Marian's schools by a restless desire for his own approval. The theatrical element in his composition kept him for ever playing to his own shadow. When he decided to remain in Eastchester and immerse himself in the prosyness of Smeltham for the benefit of orphan and pauper children, he felt that at last he was clothing his spiritual life with tolerable completeness. He enjoyed something like the sensations that tickle the parvenu upon first infringing upon "Society;" only in Ralph's case the elevation was a moral one. Yes, here too in the moral world as well as in the world of dollars and cents, peerages and distinctions, there is something, difficult to name, that is akin to snobbery. We find the *nouveaux riches* who have recently "struck oil," deep veins of unctious religiosity, and chapmen and commoners whose nobility in virtue has been "conferred," not inherited as a natural endowment. The tailor-made gentleman in Society has his counterpart among the morally elect. Perhaps we ought not to blame Ralph if he mistook an easy self-satisfaction for spiritual exaltation. Who hasn't done so, particularly in these days when we are so busy forming co-operative societies for our moral gratifications in order that we may eke out a sensible result from exceedingly small personal con-

tributions? Tallowfat belongs to the Haut Ton Charity Organization, and once a year, when he makes his limited donation (as published in the Society's report), the good man feels that he has been repeating the miracle of the loaves and fishes. Last year each member of the Society of Virtuous Spinsters must have obtained almost the delights of industrious maternity through the reclamation of the thirty-six fallen creatures reported by the Society's agents. In this age of wonderful economies is there anything more admirable than our labor-saving devices?

After a short time Ralph again grew tired of himself, even in his moral rôle. The trouble was he couldn't perceive that the ideal is only our every-day commonplaces viewed in a certain perspective. He was incapable of understanding that the commonplace is the substance and centre in which the ideal inheres. There are no heroic moments for the hero. Surely one of the dullest, painfullest drudgeries that man can possibly perform is the making of grand history. Ralph detested the commonplace; he was impatient of drudgery and was convinced that either precluded the ideal. A couple of months at Smeltham disillusioned him. The monotonous surroundings at the school-house lost theatrical value as scenery, and vulgar children striving with the alphabet turned out to be a most insufficient chorus for a hero. He settled down, though with only sub-conscious purpose, to the part he had really been playing from the first in the Smeltham experiment—that of Hero to the Heroine.

Daily intercourse with Marian gave Ralph the fullest opportunity for his part. The little nun was very pleased when Ralph offered her his assistance at the schools.

"Can you find room for me, Miss Pilgrim?" he asked, in a tone of penitential supplication. "I have come to the conclusion that all that you have said to me is right; my life has been too much an affair of self, and of late" (Ralph spoke with feeling), "old voices that I haven't heard for years have been audible."

Marian was delighted. The instinct in woman to save man was gratified. Besides, in the confession of the proselyte is there not a note of laudation for the Evangelist? Mar-

ian's ear was not sensitive enough to recognize the strains of a prothalamium as the undertone of Ralph's confession.

Consciousness is aware of but a small part of the motives that induce us to act, and, dear reader, it was imperception not hypocrisy, or purposeful double-dealing that was at the bottom of Ralph's decision. At first Winter seriously adopted his new life. He deluded himself with the utmost elaboration. He changed his room at the Carroll's because there was a bare possibility that it might be needed by the organist by and by, and Ralph desired to be permanently settled. He purchased a piano and a miscellany of standard works for "study." He wrote home, settled certain financial affairs and—opened a diary in order to record his experiences. The first entry begins: "This new life of mine must not be a failure. Please God it shall not be My hand is to the plough." An entire page of self-expostulation, self-urging, self-assuring follows, ending with: "Have just been playing Beethoven. Lost myself in dream; and the music, as though it were Marian's spirit, took form, and my love was beside me singing to the cadence of the notes. I write 'my love,' but will you ever be mine? I feel sometimes that, like Dante with Beatrice, I love a spirit, not a human being. There is, despite the immediacy of touch and sight in our daily intercourse, a sense of—what shall I say?—remoteness, that tantalizes me always and chills at times."

Day after day Ralph set out for Smeltham, sometimes alone, but not infrequently in company with Marian, either driving or afoot. This companionship was charming. It was so near, so exclusive of interference, so unconstrained. Surely, it would have flattered the hopes of any lover. But, Ralph soon discovered that it had limits, or rather limitations. Strive as he might, he could not extend his friendship with Marian beyond the point already attained. He found that as he pressed away from the centre of the peculiar set of circumstances that had brought them together he seemed to remove himself from recognition. It was as though he were associated with somebody whose familiarity with his language was sufficient for the inter-

change only of a very limited number of well-defined ideas. For complete intercourse another tongue, unknown to him, was needed. Ralph believed that he would be able to discover even that in time.

Ralph's progression along the course he had entered would have been more rapid than it was but for his meeting with Raymond Lee. This new friendship caused him to linger on his way. It added so much to his existence at one point that he did not mark how much was subtracted daily at another. He did not notice as acutely as he might how the Smeltham schools, the Workingmen's Club, the boisterous, unkempt children—the material of his new spiritual life—slipped little by little into the drab of the commonplace, and how rapidly the fire of his new emotion was burning out before any part of this material had been permanently stamped with the character of the ideal. Ralph's enthusiasms were of the kind that need to be centred in flesh and blood. A personality rather than an abstraction was always the centre of his adoration. It had been so with Marian and the schools; and with Raymond Lee, he won Ralph's love—for the friendship was not less than love—because in the essence of Raymond's nature, in the fabric of the younger man's personality, there were certain spiritual elements which Ralph longed to possess in himself, yet felt were hopelessly beyond his attainment. He was dimly aware of the contents of his own character, and perceived still more dimly that our natures are the product of an alchemy beyond the scope of human power. We may develop what there is within us, but we can impose little from without. There is no alembic wherein the grosser elements of our nature can be transmuted and the dross converted to gold. We cannot create a virtue we do not possess any easier than we can supply a deficient sense. The poetic sensitiveness, the natural truthfulness, the dominant quality of inevitableness in Raymond's individuality attracted, fascinated Ralph—the new friendship was an addition to his own life on the side of its deficiencies. So Ralph clung to him as a part of his salvation; and, as friendship with Ralph was a very active affection, not only begetting at every little

turn of companionship ardent, spontaneous generosities, but necessitating confessions and confidences, it was not long before Raymond—despite protests and his natural distaste for obligation—found himself a deep debtor to Ralph for scores of delicate kindnesses, as well as the keeper of all his intimate confidences. Painful as the position was, Ralph forced him into the full possession of all his hopes concerning Marian. He came in time even to look to Raymond for comfort and advice.

One Sunday morning the two were seated in Ralph's room at the Carroll's. Raymond, of late, had made it almost a regular practice to remain over Saturday night with Ralph.

"For Heaven's sake, Raymond," cried Ralph, irritably, "throw that 'butt' away and light another cigar. Help yourself. Beyond a certain point economy ceases to be a virtue. Light it well. If it doesn't burn evenly it will be no better than the offence it displaced. Pshaw, doesn't it rain!"

Ralph arose and went to the window overlooking the garden and the Cathedral beyond it.

"I like to hear that soft, steady downpour," said Raymond, lazily. "It soothes."

"I believe you would fatten on melancholy. A day like this gives me the blues. Even the sound of the Cathedral bells is moist. Listen to them."

"I've been listening to them for the last five minutes. There's something in the sound that passes into the mind and echoes there. The spring is in the air this morning, Ralph."

"I wish it would get into the earth. I'm sick of your gloomy English winter. Raymond, I wish you had once felt the exhilaration of our cold, ringing American winters."

"I wish I had, Ralph, I might be able to sympathize with your disgust."

Ralph left the window and flung himself into an arm-chair beside Raymond.

"Say, Ray, if I should start for home, would you come with me?"

Raymond commenced to study the floor. After a while he turned to Ralph.

"Yes, I think I would. I have come to rather like the idea, since you first spoke to me of it. Do you know, I fancy something is driving me out of Eastchester? But what's moving you, Ralph? You can't be thinking of leaving the country.... unless Miss...."

"That's just it, Ray. I fear that with this hope of mine, as with everything else I have striven for in life, I'm doomed to failure."

Winter arose and began to pace the room.

"The curse of incompleteness," he continued bitterly, "is upon everything I touch. I am permitted to open the gate so that I can catch a glimpse of what's within, but I never can open it wide enough to pass through."

"Nonsense, Ralph. In this particular matter I can't see what reason you have for despair."

"Because, Raymond, you don't love the girl. Love is hedged with subtle intuitions. Of late I have had a persistent foreboding of disappointment. Why, do you know the very atmosphere and character of my surroundings here seem to have changed. The—what shall I say?—air of permanence, of settled relationship with the things around me has quite gone."

"You are moody, Ralph. It's a passing humor."

"No, no, Ray. The *something* I have been expecting seems to have gone by. I have become merely a lingerer."

"Nonsense, Ralph. You've got a bad case of weather affliction. When the sun shines again you'll be all right."

"I wish I could think so. This is not a new feeling. It has been growing with me for weeks. Rain or sunshine has not affected it. The source is elsewhere, old man."

"But—Ralph—have you—spoken to Miss Pilgrim?" Raymond's voice faltered a little.

"Why *do* you insist upon calling her Miss Pilgrim with me," asked Ralph, irritably. "Say Marian. I want all the music I can get before...."

Ralph finished the sentence on the piano with three or four melancholy, wailing chords which he struck half unconsciousiy.

Raymond went over to him. Putting a hand on his shoulder, he said softly:

"You haven't answered my question, Ralph."

Ralph's fingers continued to move idly over the keys.

"No, Ray, I haven't spoken. But I have tried. Always I have met what is even worse than inhospitality to my desires—an impossibility of recognition. I don't believe Marian will ever marry."

Raymond winced. Ralph continued to play. After a moment Raymond asked:

"What makes you think that?"

Ralph wheeled around quickly on the music-stool.

"You remember when Miss Craik and John Dix were married? Well. As the two left the church I whispered to Marian, 'They are so happy, I envy them.' 'Why do that," she asked, 'when there are so many ways of being happy?' 'But none like that,' I said. 'Yes, many ways quite as pleasant,' she replied. 'Wouldn't you marry?' I asked. It was all I could do, Ray, to conceal my trembling. She was silent for a moment, then answered my question in that serious, thoughtful way of hers as though she were making some declaration of faith. 'I don't think so, Mr. Winter. I don't think it's possible now.' I need not tell you this took the heart out of me. It was said so plainly, as though I was the remotest person from any possible relationship with her. Since then I have not dared, even in the most distant way, to approach the subject again."

"But that is three months ago, and in three months, Ralph, how many times can a woman change her mind?"

"But not Marian, Ray. She is a creature full of dreams and fancies, yet so constant. Mrs. Carroll told me that Marian once said to her that she *knew* the man she would marry, if she married at all. Mrs. Carroll says she believes that is exactly so, Marian is always dreaming. I am not he, Ray. My destiny isn't a happy one."

"Destiny is not troubling herself about you Ralph. She has bigger affairs to attend to. Just at present, for instance, she is very busy in your country preparing a new theatre for a new world-tragedy, comedy, idyllic drama or roaring farce. Like the soubrette in the first act she is spreading the table

now, and History with all the great actors will follow by and by. How important you make yourself with the notion that Destiny's busy with you."

Ralph smiled.

"I suppose a man's little toe is larger than the universe when there's a pain in it; but, Ray, I've no hope and I'm blue, and if it wasn't for you I'd—I don't know where I'd be."

"Don't talk that way, old man, it's weak. Cheer up, you're under the weather. When it clears up you will see what everybody sees, that Miss Marian 's in love with you."

"Who sees it? Who says so?" asked Ralph, eagerly.

"I see it. Mr. Wart sees it. Mrs. Carroll, here, sees it," answered Raymond, warmly. "Who doesn't see it, but you—because (into Raymond's voice there came a deeper accent) you are in the light, Ralph, and we are in the shadow."

"What's the matter, Ray?"

"Matter? Nothing, except that it pains me, Ralph, to see you so foolishly despondent over fantasies. Marian is in love with you; don't you hear it in her voice which grows sweeter and softer every day and remoter like the voice of one that lives in dreams? don't you see it in her eyes which reveal more from within than penetrates from without? don't you perceive that the power of the mystery is with her, and everything she touches is blossoming for *you*? Why, I'd be willing to die"—Raymond's voice suddenly fell and passed into quite another key—"willing to die if I could see you together and happy. I love both of you."

Raymond was perilously near to tears. He was looking into Ralph's face.

"Why, Ray, you're sick; how pale you are," cried Ralph, springing forward. "Lie down on the sofa."

"It's those strong cigars of yours, Ralph. I will lie down. Don't mind, I can make myself comfortable. Play to me—your marriage song, Ralph. Marian is here in spirit, play to her."

Raymond closed his eyes so that the music might not be interrupted. Instantly he felt its spell. Feelings that a moment before had cried to him so poignantly seemed to be absorbed into a tenderer medium and float

away like music of his own making. It was so natural that Marian should love Ralph ; of her love for Ralph there could be no doubt. As for himself what was he but an interloper, torturing himself by taking part in a play that really did not concern him. Dear old Ralph, impetuous, impossible Ralph, wrestling forever with his own shadow and crying that the Powers of Darkness are leaguered against him. How absurd! when a word would loosen Life's one enchantment and dissolve the prosy world—dear, how the music suggests it—into moonlight and purple shadows and living silences in which the unspoken word to fulfill the soul desire trembles at the point of utterance. In Ralph's present frame of mind doubt may rule until—what is he playing? How that music soars. The eye follows the lark and, as the little singer fades, is lost—in a vision of Heaven. Why could not I speak or hint to Marian. She will understand. She is to be here this evening. Why not speak at once? There, that is the measure, the full chords, the straining notes, the cry of joy, the heart's jubilation.

"That's splendid, Ralph," cried Raymond, rising. "Splendid—splendid, old fellow. You and Marian shall leave the church to it, if I can only get somebody to play it."

"Do you like it?" asked Ralph, smiling, pleased.

"You never did anything better."

"It came to me instantly like a thought, upon changing the key of what I had been playing. Look. So."

Marian was a regular visitor at the Carroll's on Sunday afternoons. For years she had devoted that part of the week to her old friends. On Sunday, after dinner, the great historian took a nap, and as soon as his eyes were firmly closed on the big sofa in the library, Marian would slip over to the organist's. Formerly the visits were short, but upon Ralph's arrival they were lengthened, until at last they frequently extended well into the evening—that was when Ralph was in a playing mood, or when the conversation happened to stride into a lengthy and interesting road. When Raymond joined the circle the later hours became the rule, and the cathedral clock usually had struck eight before Marian set out across the Close for home.

The rainy weather on this particular Sunday began to break up shortly before sunset. The dark sky opened low on the Western horizon and revealed a further heaven beyond, of pale blue suffused with a watery yellow light that shot out from under the distant edge of sombre, purplish clouds, and colored the twilight. The wind had died, but the moisture still dripped from the eaves of the house and the bare, black branches of the trees. The little party had broken up earlier than usual for the purpose of taking advantage of the better weather by walking over to Marian's for tea. Mr. and Mrs. Carroll had gone to their rooms to prepare for the street, and so had Ralph to his for the same purpose. Marian and Raymond were alone. Marian was sitting by the window. To Raymond who was watching hidden in the gloom, her form appeared as a dark shadow outlined against the pale brightness of the far West. Her hands were folded listlessly in her lap. She had passed for a moment into reverie watching the twilight. Every movement of thought toward the purpose Raymond had set before himself in the morning stirred his heart so violently that he almost feared Marian would hear it. The silence was like a heavier atmosphere that encompassed him about and prevented action. He could hear his thoughts, and once he felt sure that they had become audible. But no, Marian didn't stir; the only sounds were the ticking of the clock and the irregular dripping of the water. The yellow of the sunset changed to crimson. The bare trees and their gaunt branches grew darker against the sky and shuddered as a little gust of wind like a belated bird hurried past into the night.

Raymond's thoughts were in a tumult—they were crowding in upon him from so many quarters. They vanished suddenly when Marian said:

"An evening like this seems to sing the nocturne Mr. Winter played. Looking yonder one can hear it so clearly."

Raymond crossed the room to her side at the window.

"Yes, it is the very spirit of a moment like this, and Ralph plays it exquisitely."

"Exquisitely," repeated Marian, softly. "Exquisitely. But it is almost too sad, such a hopeless cry, neither to God nor man."

"Yes," said Raymond, struggling to shake off the terrible feeling of constriction around the heart. "It—have you noticed—I think Ralph is very unhappy, perhaps that is why he plays it."

"I hope not," exclaimed Marian with a little surprise. "I would be sorry."

"Yes," said Raymond, interrupting eagerly. "I was sure you would regret it. I have been troubled of late to see the change in Ralph. He is so sensitive—where—his feelings are concerned."

Raymond stumbled badly with the last sentence. Marian didn't perceive the drift of it.

"Yes," she said, vaguely, and then added dubiously: "I thought Mr. Winter obtained a great deal of satisfaction from his work at the schools. He told me he had never been happier."

"Miss Pilgrim, do you know I am afraid Ralph has learnt more at the schools than he has taught."

Marian noticed a change in the tone of Raymond's voice. She raised her eyes quickly to his, but the light was not strong enough for her to see his face clearly.

"I don't quite understand."

Raymond's heart was struggling violently. He had to grip the back of Marian's chair with one of his hands as he said:

"Oh, Miss Pilgrim, pardon me—understand me; Ralph loves you."

The startled reply that followed his speech struck him like a blow.

"No, no."

Marian arose from her chair, threw one glance at Raymond and then buried her face on her hands.

"Forgive me, Miss Pilgrim, forgive me. I had no idea I could be mistaken. Oh, I am so sorry. It was for Ralph."

Raymond approached closer to Marian, and as he did so her hands fell to her side and she turned her face for a moment full to his. The movement was eloquent of a

momentary powerlessness, a mute appeal. In an instant Raymond's hand was in hers.

"Oh, Marian," he cried.

The room and the yellow twilight mingled and spun around him. Then he felt a hard grip upon his shoulders. The face that he had seen on the beach at St. Michael's, years ago, was again peering into his out of the darkness, the same blood-shot eyes, the same ferocious scowl, so distinct this time that every lineament was visible. He heard Marian's voice crying in alarm:

"Mr. Winter!"

The sound seemed to dispel the giddiness. He felt Marian pressing him gently into a seat.

"Did he hurt you?" she asked.

"Who? Oh, no! It is only a dream; a silly phantasy that came to me long ago at St. Michael's."

"Crying, Marian? What have I said? Oh, here's Mr. and Mrs. Carroll! Where's Ralph?"

"He ran out," answered Marian, struggling to hide her tears. "He must be in the garden."

But Ralph was not found that evening.

To be continued.



NEEDED IMPROVEMENT IN PLASTER FOR WALLS AND CEILINGS.

THIS paper relates to one of the more important and the most neglected feature of the art of building; namely, the plastering of walls and ceilings. Though it may contain nothing new and therefore interesting to the learned architect, whose profession implies a thorough knowledge of every art and detail relating to construction, it must be kept in mind that others less informed are variously interested in the execution of the structures which he originates and lays out; as, contractors, masons and plasterers, carpenters, decorators, plumbers, glaziers, painters, etc., and especially the *owners* and *occupants*. These (and possibly some architects as well) may find herein suggestions, relating to the subject in question, which have not hitherto been brought to their notice.

When it is considered that forty millions of the sixty millions of barrels of lime, annually produced in this country, are applied to walls and ceilings, the magnitude alone of the subject of plastering would warrant greater consideration than it has received.

Not long ago houses for homes, as well as public buildings of any pretension, were fashioned substantially in accordance with certain lines, forms and proportions laid down by architects of olden times, which were to be no more deviated from than religious dogmas; while ordinary resident houses, particularly in country districts and villages, were as devoid of architecture as dry-goods boxes, barren alike of beauty, comfort and convenience.

But, within the last fifty years or so, these arbitrary rules of earlier architecture have yielded their sway; so that *now*, when a person would erect a structure for his home, instead of seeking to build as others have built, he strives to originate a plan that will so far differ from dwellings of his neighbors that it shall have not only an identity of its own, but if possible, embrace more and finer lines and forms of grace and beauty, and more harmoniously blended shades of color, and include a more desirable arrangement of rooms, closets, nooks and corners, promotive of satisfaction, comfort and convenience, than any house previously built. This may be said also of various public buildings, including even churches—though churches, temples and cathedrals doubtless retain more of the styles of former times than any other class of structures.

After the days of Rome, until comparatively recent times, architects were more ambitious to adhere to classic lines, and further develop the fine-art elements of construction, than to study utility, ever seeking for those fine and exquisite combinations of forms, harmony of colors and decorations, which they supposed could be so far discovered and developed as to yield no less rapturous delight to our vision than music affords our hearing. But the later leaders of the profession, recognizing the new and more practical demands of modern developments, have given greater attention to utility and adaptation to present needs, which has resulted in producing more desirable dwellings and more practical public structures, embracing, if not so much of the heavy, massive grandeur of exceptional samples of ancient and me-

diæval times, yet greater usefulness and more general variation of architectural beauty.

Hence our cities, villages, and even country districts, are studded with an endless variety of cosey, beautiful and homelike dwellings, which, together with our innumerable banks, exchanges, office-buildings, blocks of flats, club-houses, warehouses, railroad stations, hospitals, town-halls and other civic structures, insurance offices, picture and other art galleries, theatres, museums, colleges, etc., present throughout all the more civilized nations a variety and general picturesque display of practical architecture undreamed of by architects of former ages.

Besides this advancement in external beauty of residential and other structures, various improvements have been made in the choice of building materials, as a better selection of stone and extended use of iron and terra-cotta; and *internal* modern conveniences of every kind have been provided, as steam-elevators, gas, water, electric-bells and lights, annunciators, speaking-tubes, heating apparatuses, ventilators, toilet-rooms, etc.; and great progress has also been made in fine finishing, including an endless variety of polished hard-wood finish, moldings, panels and carvings, tiled floors, plate-glass windows, chandeliers, mirrors and carpets, and all kinds of better hardware, from locks to window-catches; until no pains or skill have been spared in perfecting, decorating and beautifying our dwellings and other structures to the completest degree, except in the matter of *plaster* employed for walls and ceilings, which, instead of having kept pace with other improvements, has *deteriorated*, not being as good now as it was years ago.

In fact, most of the plastering of the present time is of such inferior quality that its failure to stand often causes the destruction of paper embellishments, painted and other wall decorations far more costly than the plastered walls themselves.

No art in the economy of building accomplishes so much to produce internal neatness and elegance, and no one is more absolutely important, as far as the use and stability of the structure is concerned, than that of the plasterer. Plastering of walls and ceilings constitutes the completion of *five* of the six sides of every room, hall and closet, and hence it is the *chief* part and finish of the entire interior of all residential and most other structures. Therefore, there must be some explanation, which possibly may be found in this article, why the art has not been, from time to time, correspondingly perfected with other building improvements.

The very general practice of plastering walls and ceilings is of comparatively late date. Not much more than a century ago walls were wainscoted and ceilings boarded (or boarded and canvassed), or left with naked joists, both in England and on the Continent. The mediæval school of architects, which, with the cry of "no shams," would return to this style of finish, is forced to admit, after all, that good cementitious plaster is preferable to wood for walls and ceilings.

To supply many needs, especially in the different departments of construction, thorough research has been made throughout the world for materials from which to make various plastic cementitious mixtures that will set and become hard, even in water as well as the air. The variety and extent of the requirements of such mixtures are very great—from submarine foundations to delicate works of art; but for no one purpose are they more useful or more extensively employed than for walls and ceilings in building. For this purpose (as the principal ingredients) none have been or are likely to be discovered superior to or less expensive than carbonate and sulphate of lime.

Even hundreds of years ago cementitious ingredients were treated and combined in such manner and proportions as to produce a fine imitation of polished marble, and of any desired color, but at such great cost as would preclude its common use for walls and ceilings.

In later times were provided other cementitious mixtures, among which may be mentioned what is known as Parian cement and Keene's cement, which, though less costly than artificial

marble, are nevertheless by far too expensive for this purpose.

And now, that is within the last three or four years, an improved wall plaster, consisting of better materials than simply lime, sand and hair, has been discovered, and which, by employment of steam power and machinery in its production, instead of hand labor and utensils, can be provided at the same cost of fair quality of common plaster; and which is being rapidly substituted therefor, and (except delayed somewhat by prejudice against innovations on the part of plasterers) will soon be generally adopted.

It is claimed by some architects that sufficiently fine plaster for walls and ceilings *can* be made from simply good lime, sand and hair. This may be admitted, provided the mixture of the lime and sand be allowed to remain a long time "in stack" before it is wet up for use, and provided also it be sufficiently worked or mixed to insure homogeneity, and provided, too, the hair is not worked in until the time the plaster is wet up for use (as otherwise the lime would destroy it). But plaster thus made, and by hand labor, though it contain only lime, hair and unwashed sand, will also (like the Parian and Keene cements) cost more than can be afforded for ordinary use on walls and ceilings—and even this quality of simply lime plaster will not resist the action of water.

But, by the use of the right proportions of both carbonate and sulphate of lime, modified by a small quantity of other materials, and by use of properly treated sand, and other fibre than hair, and the employment of an extensive and well appointed plant, it is known to be not only possible, but eminently practical to produce a more cementitious, harder, stronger and therefore more nearly germ-vermin-water and fire-proof, and less costly wall plaster than it is possible to make from simply lime, sand and hair, and at such a moderate cost that it will compete in price with ordinarily good common plaster.

To those who are contemplating the building of residences or other structures, and are not familiar with the subject of wall plaster, an explanation of the *indispensable requisites* of the best production, from any special or whatever cementitious materials, will doubtless be of interest. These are:

1st. Suitable quality and *preparation* of the materials, especially the *sand;* 2d, proper *proportions* of the several ingredients, and 3d, thorough and uniform *mixing* of the same—neither of which requisites are or can be strictly or even approximately complied with in making wall plaster by the usual means employed, as will be hereafter shown.

First: As to the materials. Whatever may be employed for the cementitious constituents of the plaster—whether lime, gypsum, Portland cement or any combination of these or others—the sand, which is always a component part, must be of the best and silicious quality. The harder and sharper it is the better, and therefore it should be either river, bank or pit sand. Sea sand is objectionable, because its particles are rounded by attrition, caused by the action of the sea, which makes it less efficient than sharp, angular sand, and for the reason too that it cannot be entirely freed from a saline taint whereby it gives the walls a tendency to attract moisture. It is evident that the sand should not be too coarse, and it must not contain any very fine particles. It must be free from all foreign substances. Hence, as no sand is ever found in this condition, it must be submitted to treatment; that is, its very fine and coarse particles must be *screened* out, and all dirt and dust *washed* out, until it ceases to discolor the wash-water, and then *kiln dried;* for the very fine particles of sand itself, dirt, dust and water (before wetting for use) only weaken the strength, diminish the hardness and deteriorate the color of the plastered walls.

As an evidence of the superiority of prepared sand, it has been demonstrated that the *poorest* lime with sand *thus treated* will make better plaster than the *best* lime with ordinarily good *untreated* sand—yet poor lime should never be employed.

Though it is supposed that the admixture of sand originally was for the purpose of saving lime and preventing

shrinking, it is now assumed to have a valuable chemical function, causing the formation of a hard silicate of lime, pervading and thus strengthening the plaster. Walls also become harder, in time, by gradual conversion of the hydrate into carbonate of lime.

As to the cementitious ingredients, it is not the purpose of this paper to give an account of the various materials used, their relative proportions and the process of their combination in the production of the improved wall plaster cement alluded to; further than to mention that the chief cementitious ingredients employed are lime and gypsum, and asbestos for fibre.

Pure lime (which is an oxide of a metal, known in chemistry as calcium) does not exist in a natural state, but is abundantly found in the conditions of carbonates (common limestone) and sulphates (gypsum, yielding plaster of Paris). Limes are generally classed (since the publication of the work of Vicat), as (1) rich limes, (2) poor limes, (3) lime slightly hydraulic, (4) hydraulic limes, and (5) eminently hydraulic limes. Only the first two are suitable for making wall plaster, and only the *first*, or rich limestones, which are the purest oxides of lime (and therefore the whitest), should be employed in the manufacture of an improved wall plaster cement. Poor limestones contain silica, magnesia, manganese, or metallic oxides, and, therefore, are liable to vitrify and discolor in burning, and do not slake as freely as *rich* limestone.

Second. Relating to the proper *proportions* of the materials, it is evident that the best wall plaster (whatever cementitious ingredients may be used), depends also upon some *definite relative proportions* of the sand and other materials employed, which if in the least deviated from will correspondingly deteriorate the product.

To produce the hardest, most compact and strongest plaster, from any given materials (so far as dependent upon proportions), the amount of lime (or whatever cementitious materials are used) must be sufficient and only sufficient to fill the voids or interstices of the sand. If more lime is employed the walls will not be so hard; if less, not so strong and compact. But as the amount or sum of the voids or interstices in different grades of sand greatly vary (in the extreme as much as 18 per cent), this fact must also be kept in mind in proportioning the other materials, so as to meet the requirements of the grade of sand employed.

By a series of experiments these proportions can and should be ascertained, and, in the production of wall plaster, be strictly adhered to by automatically or otherwise weighing all the materials before they are mixed. For, without regard to chemical law of proportions, the best results are no more attainable in the production of wall plaster than desired qualities in the treatment of iron, steel or any other product involving whatsoever chemical action. Chemical, nor any other natural law recognizes cupidity or convenience of plasterers or whomsoever; there must be unqualified compliance, or failure follows.

Third. Relating to the *incorporation* of the materials, it is also evident that, though the several ingredients be of good *quality* and properly *prepared* and put together in the *correct proportions*, that the perfection of the plaster will still greatly depend upon their incorporation; that is, the several ingredients must be so thoroughly and uniformly mixed together that every *infinitesimal part* of the mixture shall be homogeneous and consist of the required definite proportions.

As it requires, for instance, about a hundred thousand pounds of dry materials (sand and lime) to plaster the walls and ceilings of an ordinary sized city dwelling, and as these (to obtain the best results) must be so thoroughly incorporated that not only every ounce but every particle of the mixture shall consist of the specific average proportions of the ingredients, it becomes apparent that the necessary power and machinery for performing this part of the work alone, to say nothing of the required power and apparatus for treating the sand, as heretofore described, renders it absolutely impossible to make perfect wall plaster by the method now universally employed, or by whatever

method, at the buildings where it is to be used.

In view, therefore, of the great amount of labor indispensable to the production of suitably made wall plaster nothing could more forcibly demonstrate the advantages of labor-saving methods and devices than the handling, preparing, weighing and properly incorporating its ingredients by an extensive and well-appointed plaster manufacturing plant.

From what has already been said it may be inferred why plastering of walls and ceilings has not only deteriorated, but also why it has not improved; yet, other reasons are naturally suggested.

Though it may be no exception to the prevailing tendency in business transactions generally, unfortunately the interests of the owners of buildings and the masters of the various artisans concerned in construction are more or less conflicting. To state it mildly, the former desire and demand of the latter as *good* materials and workmanship as are specified and contracted for; while the latter strive to furnish no *better* materials and work than specified; and usually the latter come out ahead—especially is this the case with the plasterer, as will appear:

1st. The difference between good and poor plaster, whether off or on the walls and ceilings, is not apparent; 2d, one of the two chief ingredients (the sand) may not be well selected; 3d, this ingredient, however inferior, may not be properly treated; 4th, the materials may be proportioned by chance, and so not with any accuracy; 5th, the ingredients may not be homogeneously mixed; 6th, formerly no improved wall plaster has been produced at a cost that could be afforded.

To enlarge a little on these points:

First: If, for example, slate were specified for roofing, mahogany for doors, Philadelphia brick for front wall, plate glass for windows, etc., the contractor would not have the hardihood to employ other materials, as any substitution would be evident. But however specific be the wording of the specification for plastering with lime, sand and hair, there are, owing to the usual manner of preparing plaster, no means of determining with any accuracy whether or not the architect's specifications are strictly complied with; hence the plasterer's integrity is severely subjected to the fascinating temptation of a liberal use of sand, and often of inferior quality as well. Besides, the greater part of *his* work is concealed from view by the so-called hard finishing coat, which gives his work the appearance of being all right, irrespective of the merits or demerits of the cementitious quality of the body of his plaster. Hence, the temptation of this important artisan to slight his work is quite equal to that of the dairyman to water his milk—who finally came to need statutory aid to regulate his traffic. In fact, the architect and contractor are more or less obliged to consult the statutes for guidance—but plasterers have methods and secrets which none may question.

Second: As to selection of sand, it is frequently not selected at all, the dirt excavated for the cellar and foundation being used. If a selection is made, it is oftener governed by convenience and cheapness than by its suitable quality; hence, usually, instead of using clean, sharp river or pit sand, a mixture of indifferent sand and dirt is employed.

Third: As to the *treatment* of the sand, this is never done, except it contains stones and pebbles as well as dirt, when, to exclude these (the stones and pebbles), it is simply thrown upon a coarse slanting screen. No sand, however well selected and free from dirt, is as good without as with treatment; that is, *screened, washed and dried* as and for reasons before given. Such poor grades of so-called sand are often used that, if submitted to the above treatment, would not yield a fifth of their weight of proper quality.

Fourth: The *proportioning* of the sand and lime is only guessed at, the sand being scraped and thrown into the slacked lime haphazard, with hoe and shovel, without regard to quantity or exact proportions, whereby one batch of the mixture is liable to have a much greater or less proportion of sand or lime than another.

Fifth: As to the homogeneous *incorporation*, it is simply impossible by hand labor and hand implements, at any tolerable cost, to sufficiently incorporate sand and lime (or whatever cementitious ingredients) to insure the best results.

If a small quantity of plaster, prepared in the usual way (however superior the several ingredients, or however correctly they are proportioned), is examined with a magnifying glass, when being applied to the lath, it will be found that minute and even larger portions of it contain more than the average proportion of lime, and other portions a greater quantity of sand, whereby the plaster, when dried on the lath, will not be as strong, hard or uniform in appearance as it would were it more thoroughly worked or mixed—in some spots it will be nearly all sand, in other places mostly lime.

Much of the common plaster now used for walls and ceilings is so poorly made that it is self-disintegrating and crumbles away wherever the finishing coat is broken, and for strength is largely dependent upon the employment of hair to assist in holding it from falling to pieces for lack of inherent cementitious properties of its ingredients.

While some suitable fibrous material may be advantageously employed, it is absurd to chiefly rely upon it to hold the particles of plaster together, after the fashion of holding beads together with a string, instead of depending upon the hardness of the set and tenacious quality of the cementitious materials.

As regards hair, especially tropical cattle hair, it would seem that it is the foulest material for the purpose that could be selected. In fact, were it not for the disinfecting properties of lime, it would breed infection in every household. Hence, in view of health and wholesomeness, some vegetable or mineral fibre, as jute or asbestos, would be preferable; while the employment of asbestos has the advantage of rendering dwellings and other buildings more fire-proof.

Plaster (as ordinarily made), for lack of tenacity, resulting from want of sufficiently cementitious ingredients or, by having inferior, or too much sand, or both, necessitates a greater thickness of it than otherwise would be needed, whereby the building becomes too heavily loaded, and (at first) unnecessarily saturated with water; whereas, a stronger, harder and quick-setting plaster would not require the walls (unless desired) to be so thickly coated. Besides, with such a plastering cement, more of the water would be absorbed by the set, and, therefore less of it evaporated to swell and injure the woodwork throughout the structure. And, too, by the use of such plaster, much delay would be avoided in the completion and occupancy of buildings, as the carpenter, with his work, could sooner follow the plasterer, and far less time, also, would be required for general drying of the structure.

Another unsatisfactory feature of common plaster is its porous and absorptive qualities, affording lodgment for moisture and germs of disease in damp weather, which, in turn, are given off by evaporation in dry weather; whereby it is not so wholesome, especially for hospitals, sanitariums, schoolhouses, and resident structures, as a harder, closer-setting and finer grade of plaster.

It is a well-known fact, learned by experience, that common plaster does not retard the progress of fire in buildings nearly as effectively as harder and more cementitious plaster, especially if, in the latter, asbestos is employed for fibre.

Another common and serious defect in ordinary plaster is what is technically known by the term "pitting," to understand the cause of which needs a little explanation:

Owing to the difficulty, if not impossibility, of burning limestone with perfect uniformity, so that all parts of it shall be sufficiently burned and none overburned, it follows that, when the lime comes to be used, it will not *slake* with uniformity. Some particles of it will not as readily slake as the bulk of it; and, therefore, when the mortar is made and stacked in piles, all the unslaked particles will go on slaking; and it is only by allowing the mortar to remain a long time (a year or more) in

this condition that complete slaking of the lime can be assured.

To save time and expense this is seldom if ever done. The usual practice is that as soon as a considerable quantity is stacked to commence immediately to wet it up and put it on the walls, and cover it over with the so-called hard finish, which for a while appears all right. But in course of time the penetration of air and absorption of moisture will continue to slake the particles of unslaked lime, which at first swell and cause little bulges to appear on the surface of the wall, which finally crumble away and leave little "pits" or indentations.

This blemish of walls cannot be avoided except, as before stated, by allowing the mixture of lime and sand to long remain in stack, and introducing the hair afterward, to do which makes even lime, sand and hair far more expensive than a superior quality of improved and more cementitious plaster, which is wholly free from this defect.

Still another objection to common plaster is its free absorption of water, and (if once wet) its consequent loss of tenacity and strength.

To this may be responded, that, in the use of plaster for walls and ceilings, it is not supposed to be subjected to the action of water, and that, therefore, its water-proof quality may be pronounced superessential. But this would be to suppose that vessels of water are never accidently overturned, that roofs never leak, that water pipes never burst, that faucets are never left open, or that firemen never drench an entire structure to extinguish flame in a single room. In short, walls and ceilings are frequently exposed to the action of water, especially from defective plumbing; and wall plaster, therefore, should be sufficiently resistent of its penetration and effects to suffer no injury by, though long exposed to it; whereby ceilings would often be prevented from falling, and danger to life and expensive repairs avoided.

It has been demonstrated by experience that an inexpensive, hard cementitious plaster can be and is made which is impervious to water, and, though frequently and for a long time exposed thereto, suffers no essential injury; whereas the average common plaster, if once thoroughly wet is practically destroyed; as shown by many a ruined wall and fallen ceiling, caused, perhaps, by a rat-gnawed pipe, a choked drain, or a driving rain-storm.

In view of the extensive application of paint as the final finish of walls, this porous and absorptive quality of common lime plaster presents also, in this respect, another economic objection in the extra expense of materials and labor for this class of finish. The cost of painting such walls being more than double that of similar treatment of a closer setting, harder and non-absorptive plaster.

It is also an objection to common plaster, that, not being sufficiently hard and resistent, the walls are subject to defacements and blemishes by unavoidable contact. Besides, as walls are liable to become soiled by dust, dirt and marks of discoloration, they should be sufficiently impervious to resist the penetration of water, to allow them (without injury) to be occasionally washed. Walls made of ordinary plaster cannot be subjected to such treatment, whereas suitably cementitious walls, having a correspondingly hard finish, could be thus cleaned as readily as slabs of marble, and without the slightest injury.

By the present method of preparing plaster on the street, the freezing weather of winter causes much unavoidable delay, not only of the plastering, but all other work that cannot progress until the plasterers are out of the way; whereas if the plaster were systematically manufactured and supplied, in a dry form, as above set forth, it could be handled and applied with the same facility in the winter season as at other times of the year. No mixing or further working of the plaster outside of the building being required, the plasterer could proceed uninterrupted either by storm or temperature; which is no inconsiderable consideration in point of convenience and economy of time and expense.

The uses of common mortar and wall plaster are so widely different that it is

possible and feasible to prepare the one by means that would be wholly inadequate to suitably make the other. Common mortar (consisting only of lime and sand), such as is used for building purposes other than for walls and ceilings, as also mixtures of sand and Portland and other cements, employed for concreting and other foundation work, may be advantageously prepared on or at the premises where they are to be used, for the various work to which such mortars and mixtures are applied has no reference to fine finish or sentient contact (touch and vision); therefore, with such mortars, *if only sufficiently strong for the purposes intended*, it matters not if the sand is not treated, or the proportion of the ingredients is not so exact, or their incorporation so complete. But it is altogether different with walls and ceilings. The plaster for *these* requires to be as much more *perfectly* made, and in every way as far *superior* to common mortar as the required fineness and superior finish of walls and ceilings exceed that of the work to which common mortar is applied. Common mortar requires but the *one* quality of strength. Wall plaster requires strength, hardness, elasticity, adhesiveness, solidity, infinitesimal homogeneity, germ-vermin-fire and water-proof qualities, surface finish, purity of color, reliability and every possible excellence. The nature of its use is such that its production should be classed among the highest mechanic arts, for no less desirable is the perfection of walls, especially of residential structures, than fineness of finish of woodwork and fittings.

Therefore, it is utterly impossible, as before stated, to make wall plaster on a sufficiently large scale to meet the demand of its use, by the indifferent and crude means heretofore employed, or by any other possible means which can be devised and operated on or adjacent to the structures on which it is to be used. As well might the painter grind his paints, the mason make his brick, the glazier his glass, etc., or each household make its own flour, sugar, etc., as for the plasterer to undertake to manufacture (on the premises) the best possible wall plaster.

This, doubtless, would be the view of all architects, building contractors, plasterers and owners (as it already is of many), were it not for the prejudice growing out of long usage, which, at first, opposes all new things and methods. But had wall plaster always been thus systematically manufactured and provided, and some innovator should suggest that the plasterer could just as well (and better) guess at the relative proportions of his indifferently selected materials, and throw them together on the street and stir them up with a hoe (to say nothing of the nuisance he creates by mussing and incumbering the thoroughfare with his huge and unsightly boxes and piles of sand), he would be laughed at and set down as a crank; for it would be considered no less absurd than to suggest the abolishment of the plow and mowing machine, the cotton gin and loom, the flour mill and saw mill, or any other labor saving and perfecting process or device.

From what has been said, it may be correctly inferred that (regardless of cost) it is possible to plaster walls and ceilings with materials imitating veritable polished marble, or with such materials as come short of this in cost and hardness, like those known as Parian cement, Keene's cement, and others that could be mentioned, but which also would be, by far, too costly to be generally afforded.

Therefore, the great desideratum to be attained, as a plaster for walls and ceilings, is something that shall be harder, stronger, whiter, smoother, more cementitious and less porous than the inferior, hand-made lime and hair plaster, heretofore universally employed—something, in short, embracing every required excellence that the highest state of the art can provide, and which will comport with other building improvements of the age, but which, nevertheless, will not be (all things considered) more expensive than a fair quality of ordinary plaster, in order that it may be universally afforded and used.

But, owing to the necessary treatment of the sand and employment of more and better cementitious ingredi-

ents (than simply lime), such a desideratum (including the competitive price) is impossible of attainment, except by the substitution for hand labor of extensive and well-equipped plaster-manufacturing plants, whereby the plasterer is relieved of all labor in the production of his plaster, except adding water to the manufactured product.

While this is the only feasible method of making uniform, reliable and suitable wall-plaster, it is also the only means of removing the plasterer's besetting temptation, which has deteriorated his handicraft, measurably destroyed the usefulness of his art, and prevented him from keeping step with his associate artisans in the general improvement of the complex art of construction.

Viewing the importance of the subject in the light of the foregoing paper, *J. B. King & Company*, by extended study, numerous and elaborate experiments and expenditure of vast sums of money, have finally succeeded in attaining the desideratum of producing and putting upon the market, at the price of fair common plaster, an improved plaster for walls and ceilings, embracing every required excellence as above set forth.

The fact that they have, in their Windsor Cement Dry Plaster, reached the highest point of excellence and perfection, and at a cost not to exceed that of fair common plaster, they establish, as to cost, by the prices they quote; and as to its *qualities*, by the numerous commendations of architects and builders throughout the country who, having demonstrated its merits by practical use, confirm all the makers claim.

It is manufactured strictly in accordance with the "Indispensable Requisites of Production" of the best possible Wall Plaster, as described in the foregoing paper; as well as having mineral instead of animal fibre (asbestos instead of hair), which renders it easier of application, more sanitary and fire-proof.

It is sometimes asked, in a significant manner, how it is possible to produce a far better article for the price of a poorer material.

Though such a question seems too foolish to merit a serious answer, we reply briefly by saying, that it is accomplished in the same way that thousands of other better products are had for the same price and even for less than poorer ones; namely, by *improved and radically different methods of production.*

For further answer, we refer to the foregoing Treatise.

J. B. King.

Comparative Cost of King's Windsor Asbestos Cement Dry Plaster and Common Plaster for Walls and Ceilings.

As there is among architects, builders, plasterers and owners of various structures much difference of opinion, and on the part of some plasterers no little misrepresentation as to the relative cost of King's Windsor Cement Dry Plaster and Common Plaster:

And as the question of *cost*, especially with the majority of owners, is of equal or greater consideration than that of *quality*, it is a matter of importance that more reliable information on this subject should be furnished than has been heretofore published.

Doubtless much misapprehension relating to the matter occurs from want of specific use of terms and a definite understanding as to what is embraced when alluding to cost.

Therefore, to clearly present the case, it is necessary, first of all, to define what is included when referring to the cost of any particular kind of plaster.

The cost of common plaster (consisting of sand, lime and hair), up to the state of being stacked in the street, will depend upon various conditions, some of which are not easily defined, and, therefore, usually overlooked:

1st. The quality of the ingredients employed, especially the sand.

2d. The relative proportions of the materials used.

3d. The cost of labor for mixing and tempering, dependent on location, and thoroughness with which these operations are performed.

4th. The cost of transportation, also dependent on location.

5th. The length of time the plaster remains in stack before being wet up and used, whether for two or three days or several months.

Therefore, it would be absurd to say that common plaster stacked in the street will cost any specific sum per square yard of its covering capacity, unless the quality and relative proportions of the ingredients (as well as some of these other conditions), are stipulated and adhered to (which, owing to the indefinite and crude manner of making common plaster, is seldom expected, even though such stipulations are minutely specified by the architect).

The cost of common plaster, from the state of being stacked in the street up to the state of walls and ceilings, will also depend upon various conditions :

1st. The amount and price of labor employed in working it over or tempering it—whether it is merely wet up or thoroughly worked, to properly incorporate its ingredients.

2d. The depth of grounds—whether five-eighths, six-eighths or seven-eighths of an inch.

3d. The kind of lath employed—whether wood or metal—as well as upon the different qualities of these.

4th. Upon how far the walls deviate from a true plane—whether or not considerable depressions are to be filled up to level the surface.

5th. Upon what proportion of the work in the structure is on wood lath, and what proportion on brick and terra cotta walls—whether all lath or all brick and terra cotta.

6th. Upon the price of labor where the plastering is done.

7th. Upon the number, magnitude and elaboration of the cornices and centre-pieces.

Hence, it would be still further absurd to say, irrespective of these various additional conditions, that common plaster, applied to the walls, will cost any specific sum per square yard.

As thus there is no uniformity of quality and conditions, and consequently no invariable *cost* of common plaster (either in stack or on the walls), plasterers widely differ in their estimates; varying (including wood lath and lathing), from 35 to 65 cents per square yard—while the difference for better grades of work, with common plaster, will be still greater, and cost still more, being a dollar and upward per square yard.

It is not uncommon for plasterers to differ by several thousand dollars in their bids for plastering the same structure, though their estimates be made up from the same specifications.

The cost of plastering a building is estimated by the number of square yards of its walls and ceilings, embracing all necessary materials and labor, including the lath and lathing, cornices and centre pieces, plaster and plastering.

But the lath and lathing, the materials and labor for the cornices and centre-pieces, and the materials and labor for the finishing coat, and the labor for applying the plaster that constitutes the scratch and brown coats (on a given structure in accordance with given specifications), will not vary in cost whatever the kind of plaster used for the scratch and brown coats. Therefore, the cost of all the materials and labor, except what is necessary to the *production of the stacked plaster and its tempering* (needed for the scratch and brown coats), may be eliminated from the calculation in estimating the relative cost of common plaster and Windsor Cement Dry Plaster, which practically narrows the question down *to the comparative cost of common plaster stacked, wet up and tempered; and Windsor Cement Dry Plaster delivered, also ready to be wet up.*

As common plaster can be (and often is) made of such poor grades of lime and ruinous proportions of inferior sand, and as, on the other hand, it is possible to make it to cost even a dollar or more per yard, it is not proposed to compare the cost of Windsor Cement Dry Plaster either with the cost of the *poorest* or *best* common plaster ; for, as

the poorest is totally unfit to use, while the best is too expensive to be afforded, it is evident that it would be altogether inconsistent to compare the cost of Windsor Cement Dry Plaster either with a *worthless* or a "*fancy*" grade of common plaster.

In fact, it is misleading, unjust and absurd to flippantly say that Windsor Cement costs more than common plaster without stating what grade or quality of common plaster is referred to—as otherwise it may be anything from *mud* to a fine grade of work, costing not less than a dollar and a half per square yard.

Therefore, that there may be some definite understanding as to what is meant by the term common plaster, we will designate no *fancy* quality, but select a formula which is well known, and which all architects, builders and owners, as well as all *fair-minded plasterers*, will admit is no better in quality than is absolutely required for ordinary fair work; namely, the formula laid down by Col. Gilmore, of the Corps of U. S. Engineers, as to the required *materials* and their *proportions;* and as to the *prices* of these and the *cost of labor* for mixing them, we will take the present quotations in the New York market.

This formula of Col. Gilmore is recognized as the standard by the Government, and as authority by publishers of statistical books.

It will be seen that it does not call for treated sand, beyond ordinary screening, or require the mixture to stand any length of time in stack.

Col. Gilmore's Formula for Common Plaster; Materials and Labor at New York Prices; for Scratch and Brown Coats, Stacked, Wet Up and Tempereted, Ready for the Hod; for 100 square yards, measured on the Walls, and 3-4 inch grounds on Wood Lath:

Lime, 4 casks at $1.10	$4 40
Hair, 4 bushels at 25 cents	1 00
Sand, 7 loads at 75 cents	5 25
Labor for mixing, stacking and tempering	3 50
Total	$14 15

Being, per square yard, 14 15-100 cents.

This estimate calls for no more labor than is required for the most ordinary incorporation and tempering.

Neither does it include the cost of carting, to and fro, necessary lumber for, or setting up of mixing-boxes, etc.; or wear and tear of mixing-tools, or various disadvantages of unavoidable delay. Hence, no exception can be taken to the citation of this formula and grade of plaster, or its estimated cost in making the comparison.

J. B. King & Company, sole patentees and proprietors of the above material, furnish Windsor Cement Dry Plaster, deliverable at any building within the cities of New York, Brooklyn, Jersey City and near-by places connected to the said cities by water transportation, at the rate of $7 per ton, and allow the purchaser a rebate for bags returned, at the rate of $1.30 per ton, which makes the price $5.70 per ton, ready for use, simply by adding water to wet it up, the covering capacity of which, on wood lath, is from 60 to 65 square yards per ton, making the price from 8 3-4 to 9 1-2 cents per square yard.

Besides, the covering capacity of this material is fully ten per cent. greater than common plaster, owing to the requirement of some less space between the lath.

Common plaster, as per Col. Gilmore's formula, per square yard, 3-4-inch grounds, wood lath, 14 15-100 cents; King's Windsor Cement Dry Plaster per square yard, 3-4-inch grounds, wood lath, 8 3-4 to 9 1-2 cents, which is an average of 9 1·8 cents per yard.

Hence, it is shown that fair common plaster, ready for the hod, *costs five cents per square yard more* than Windsor Cement Dry Plaster also ready for the hod.

The result of the above estimate is not changed or in any way affected by the thickness of the grounds, or style of lath used, or by whatever walls are to be plastered—whether wood or metal lath, brick or terra cotta walls or walls that are out of true—for the reason that the comparison shows that Windsor Cement Dry Plaster is cheaper than common plaster, *ton for ton*, whatever be the use to which it is applied,

even if it were to fill up a mountain cave.

Therefore, when plasterers say that Windsor Cement Dry Plaster costs more than lime and hair, they must refer to a very inferior grade of common plaster—a quality that no reputable architect or thoughtful and prudential owner of any structure is willing to accept.

Plasterers in some instances who, having contracted to do certain buildings with common plaster, and afterward having been requested to state what they would charge extra to substitute Windsor Cement, have raised their price, over and above what they had agreed to do the same work for with lime and hair, to such a sum that the *extra* price alone would purchase double the quantity of this cement necessary for the entire work.

In a case like this, what must be the conclusion of the architect and owner as to the quality and cost of the common plaster that the plasterer is expecting to use on the job. Surely this is a "hint to the wise" that should be "sufficient" to convince the owners that plaster and plastering are of the variable and uncertain features of the art of construction.

As it is so frequently the case that plastered walls are sooner or later finished by painting them, it becomes pertinent, in connection with the relative original cost of *plastering*, to refer to the comparative cost of *painting* them, if plastered with different materials.

Relating to this feature, it has been repeatedly demonstrated that, owing to their non-porus and therefore non-absorptive qualities, the cost of painting *Windsor Cement* walls is not equal to *one-half* the expenses of painting those made of common plaster; which, though viewed from only an economic standpoint, is a matter of no small consideration.

Naturally associated with the comparative *cost* is the relative *merit* of plasters.

J. B. King & Co. have already sold over a million barrels of their Windsor Cement for plastering walls and ceilings, with which *plasterers have mixed their own and all varieties and grades of sand*, and considering that architects, builders, plasterers and owners have universally admitted its superiority, it is deemed superfluous to even allude to its merits as compared with common plaster.

Notwithstanding the extensive demand for and universal appreciation of their Cement, they had until recently necessarily taken the chances of trusting to thousands of masons and plasterers to select and proportion the sand, which in many instances has been inferior and two liberally used, whereby their material, in not a few cases, has unjustly suffered deterioration and consequent discredit.

Appreciating this, and seeing that they were thus more or less in the hands of others, and, therefore, held responsible for results over which they had no control; and realizing the extensive and growing demand for a perfect and always reliable wall plaster; and knowing the utter impossibility of producing such a plaster unless they could determine and control the *quality, quantity, proportion and incorporation of all* the ingredients that enter into its composition (except the addition of water to wet it up), they have established, in connection with their mills, an extensive and expensive *sand-treating plant*, whereby they now simultaneously incorporate the correct proportions of a proper grade of silicious sand with their Windsor Cement.

They select the best pit, bank or river sand to be had, screen out all its fine particles, wash out all dust, dirt and foreign matter, kiln-dry and thoroughly incorporate it with the cement —all the materials (even the fibre employed) that enter into the composition being of the best quality and automatically and accurately weighed before being mixed.

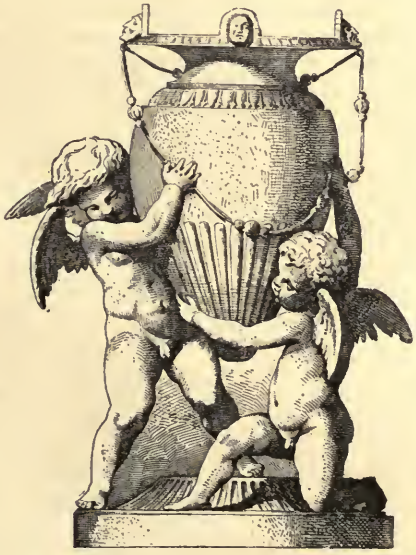
In short, their Windsor Cement Dry Plaster is manufactured in strict compliance with all the *indispensable requisites of production* of the best possible wall plaster as set forth in the preceding Treatise.

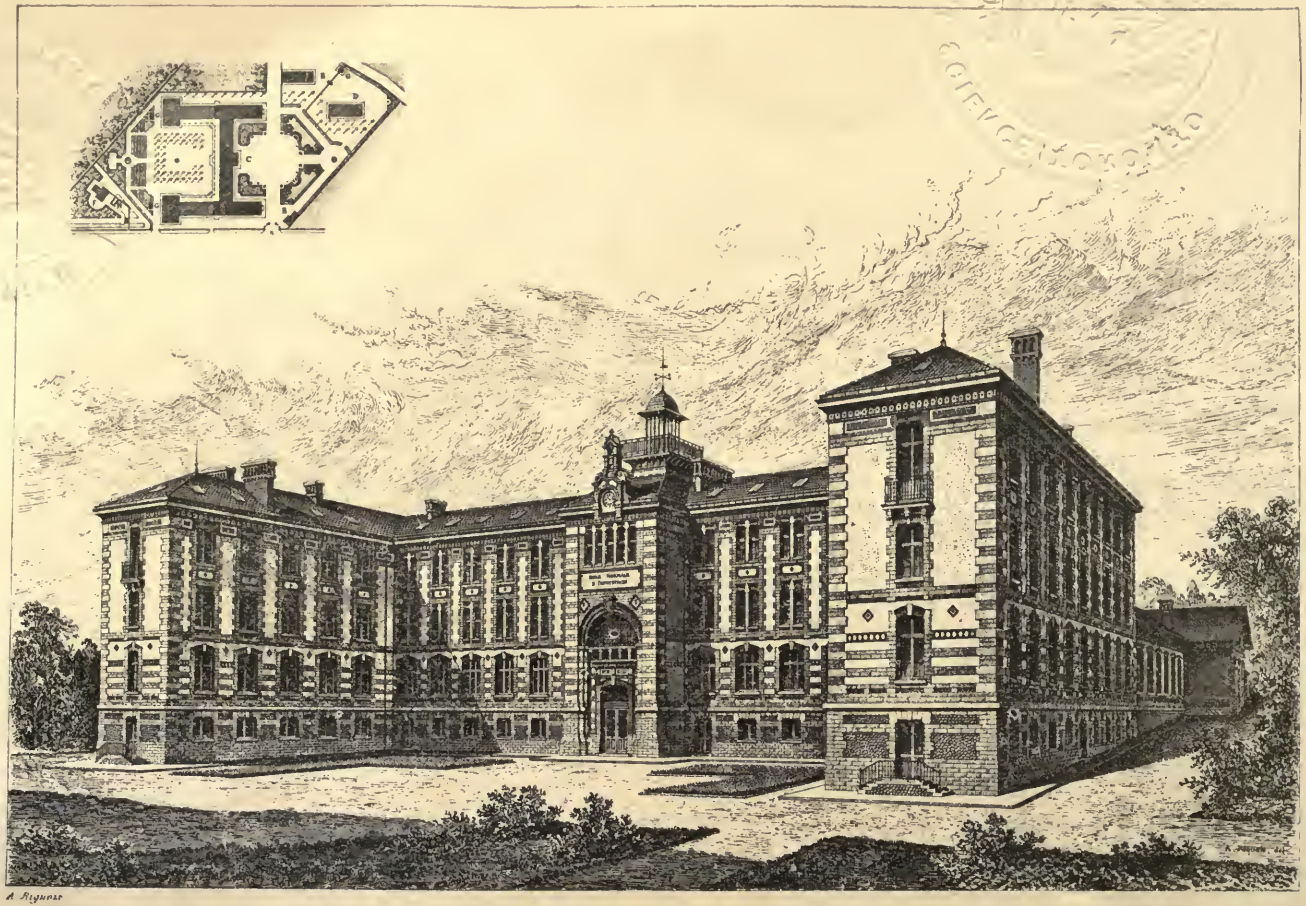
Their Windsor Cement Dry Plaster, therefore, is now as reliable and perfect as in the present state of the arts

it is possible to provide; and by its use the architect, builder and plasterer are greatly relieved of anxiety and responsibility heretofore attendant upon the uncertainty of the results of plastering; and the owners are assured of good work and saved from costly repairs resulting from the use of chance-mixed, hand-made and half-made wall plaster; while the occupants of houses plastered with their Cement find the walls surrounding them a source of perpetual satisfaction.

As this Cement Dry Plaster is as much superior to common plaster as genuine hardwoods are to their imitations, it will soon come to be a matter of as much importance with a would-be purchaser of a house to learn if its walls and ceilings are done with this Cement instead of common plaster as it now is for him to know if the wood finish consists of real mahogany, cherry, oak, etc., or only stained imitations of these. But *real* hardwood finish costs *more* than their imitations, while this superior wall cement costs no more than common plaster—which is worth the builder's consideration, though he builds but to sell.

J. B. King.





A. Rigaut

Clermont-Ferrand, France. ÉCOLE NORMALE D'INSTITUTRICES. E. Camut, Architect.

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